JENEsys Control System

User's Manual

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Start Up Guide

Overview

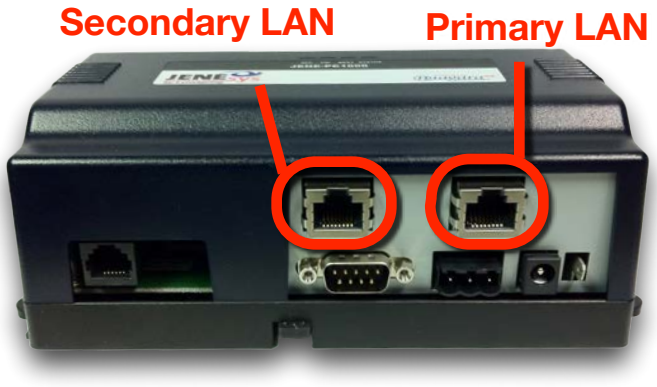
One of the major benefits of the JENEsys control package are the myriad of available interfaces and configurations. Each input on the JENEsys control system is universal and configurable. This means that any input can be a voltage input, a resistive input, or a binary input. The AAON controls department has standardized many of the input points to simplify the process of determining which input belong on which terminal points. However, the ability to customize the JENEsys control package leaves open the possibility that the universal input points for any particular unit may not match the standard JENEsys configuration. For this reason, it is important to begin each startup by reviewing the wiring diagram and becoming familiar with which points are available for the unit you are working with as well as what terminals those points are connected to.

During start up of the JENEsys controlled unit, you will be using either the web interface, the LCD interface, or the mobile interface to connect to the unit and confirm that the controller is correctly receiving inputs and commanding outputs. You may also need to configure the network protocol so that the building management system can properly connect to the unit.

Before You Begin

Before you begin the start up procedure, make sure to visually inspect the unit. Check the sheet metal for any damage or flaws from shipping. Inspect the unit coils for fin or copper damage. Ensure that the copper piping does not have any flat or dented spots. Check the shrader ports for damage. Verify that the copper piping will not have the potential to rub on other components when the unit is in operation (doors, unit walls, compressors, etc.) Tighten all wiring terminals, and check crimp terminals and butt splices for loose connections. Verify the connections by tugging on wires to make sure they do not come out of their connection terminals. Tighten all fan, pulley, and blower set screws. Check the controller and I/O modules to make sure they are securely fastened on the DIN rail and are flush with the back of the control panel. Verify that the controller and I/O modules are firmly connected to one another. Make sure that the controller and I/O modules are fastened to the back of the control panel with screws. Check that all wires coming into the I/O ports of the I/O modules are fully inserted and securely fastened. While the previous items are checked by out end of line testing at the AAON factory, it is important that they are reviewed once the unit arrives in the field as components may have shifted during transportation.

Now that you have verified the wiring of the unit and ensured that the controller is secure within the unit, remove the 24VAC power connector from the 34 point I/O module. 24 VAC power will need to be verified before it is applied to the controller. If you are using a crossover cable to connect directly from a PC to the controller, place the crossover cable in either LAN port. If you are connecting the controller to a wireless router or a wired switch, place the ethernet cable in the desired LAN port.



LAN ports of the JENEsys controller

Once all of the wiring connections have been checked and verified, you are ready to apply the main power to the unit. If everything has been properly checked and all personnel are clear of the unit, apply power to the unit. Once everything powers up, check the 24 VAC terminal for the controller to ensure that the input power for the controller is a clean 24 VAC source. If 24 VAC is confirmed, you can now apply the 24 VAC power connector to the JM34 module, powering up the controller. Do not kill power for at least 5 minutes after applying initial power to the controller. The IO modules may need to undergo firmware updates and it is very important to keep 24 VAC power constant for the first 5 minutes of start up. After 5 minutes, verify that the STAT lights and STATUS lights on all of the I/O modules are illuminated as well as the STATUS light on the controller. The BEAT light on the controller should be amber and should pulse approximately once every second. If your network or laptop is connected to the primary LAN port, verify that the PRI light on the controller is blinking to indicate a connection on the primary port. If you have any problems with the previous steps or are unable to verify the proper LEDs on the controller and I/O modules, contact the controls department at AAON for further assistance. If everything has been verified up to this point, you are ready to begin testing the controller.

Status Lights on the I/O Modules

Connecting to the Controller

There is more than one way to connect to the controller for startup. The system startup can be done through the web user interface, the mobile interface, or the LCD interface. We recommend using either the web user interface, or the mobile interface for the most efficient start up, but the LCD interface can also be used. Please see the interface sections for detailed information on connecting to the controller.

Test Input Values

Once connection to the controller has been established, the first things to verify are the inputs to the I/O modules. This section will break down how to verify the input values using the three different interfaces.

Web User Interface

Once you are connected to the web user interface and logged in to the home page, you will see a menu in the top right corner that allows you to navigate to the different pages of the web user interface. To test the input values, click on the "IOs" link in the menu to navigate to the IOs page of the web user interface. The IOs page allows you to see the values being read and written to the inputs and outputs of the I/O modules. The raw inputs have been scaled to the proper value and unit so that they are easy to read and understand. Each input and output is also labeled with the corresponding port on the I/O module so that they can be easily found on the hardware. The inputs will be in the left column and the outputs will be in the right column. We will start by focusing on the inputs in the left column.

First, check to see if any inputs are faulting or alarming. Blinking values with a black background indicate that an input had a previous alarm but it has not yet been acknowledged. Blinking values with an orange background indicate that an input is both faulting and in an alarm state. If any alarms are occurring (signified by blinking values) navigate to the "Alarms" page and acknowledge the alarms. For more information on acknowledging alarms, see the Web User Interface section of this guide.

If any of the values have an orange background, they are faulting and need to be investigated. The image on the right depicts a faulted Suction Pressure 2 input. Use the wiring diagram and the point name and address to troubleshoot the sensor. Often times, a fault can be as simple as ensuring that the wiring is properly connected to the controller. Verify that the sensor is properly connected to the appropriate terminals on the controller. Verify that the signal coming from the sensor is correct, for example, if the sensor is a 0-10VDC sensor, ensure that there is a proper DC signal coming from the sensor.

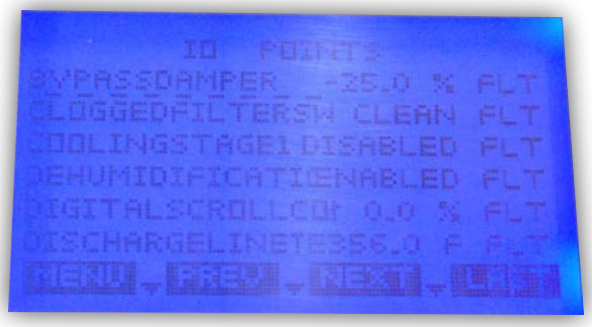
Once all alarms have been acknowledged and all of the faulting sensors have been resolved, check to see that the values of the inputs are correct. If available, check with a temperature sensor to make sure that the temperature readings are accurate to the actual temperature. If available, use pressure gauges to check that the suction and discharge pressure sensors are reporting the correct pressure to the controller. Continue these checks on all inputs to make sure that the values are reading the correct conditions before moving on to the testing of the outputs. If additional help is required to troubleshoot any of the inputs, contact the AAON controls department.

Mobile Interface

Information on how to test inputs with AAON Link is available within the app.

LCD Interface

Once you have accessed the LCD interface, navigate to the Points section. For additional information on accessing the LCD and navigating its menus, see the LCD Interface section of this guide. Once the points section has been located, navigate to the very last page of the points section. This page should be called "IO Points." From this page you will be able to view all of the inputs for the controller and all of the outputs. First, check if any of the IO Points are faulting. This will be indicated by a FLT indication in the value for the particular point. If any points are faulting, check the wiring diagram to find where the points connect to the controller and see that they are wired correctly and reading correctly. If no input points are faulting, check the values of the inputs to see that they are accurate with measured values.



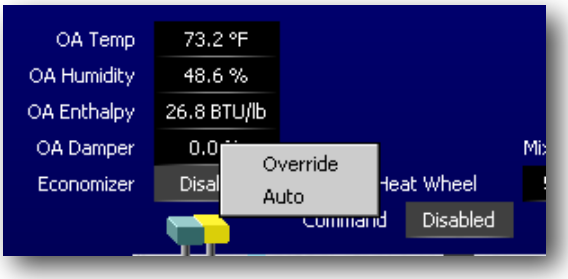
LCD Interface Showing IO Points with Faults

Test Output Commands

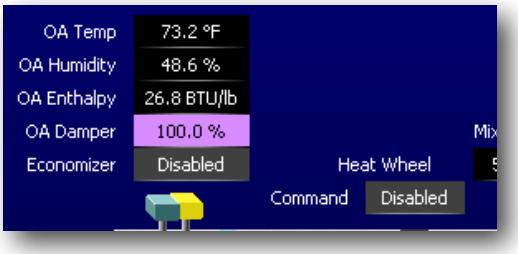
After the inputs have been verified, the outputs need to be commanded on to test that they are connected properly to the unit equipment. This section will go through each of the three interfaces and describe how to override the outputs to verify they are working properly.

Web User Interface

Testing the outputs for the unit can all be done from the home page of the web user interface. Testing the outputs will consist of manually overriding the equipment from the home page, making sure that the proper voltages are sent from the controller, and verifying that the equipment responds to the controller's signal.

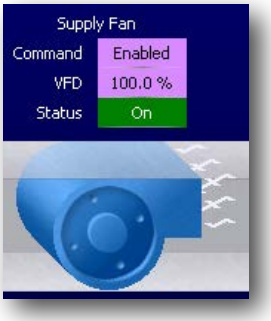


The first outputs that should be tested are dampers and valves. These pieces of equipment are important for safe operation of the rest of the unit, and should therefore be checked first before any other equipment is brought on. Begin by overriding the outside air damper to 0% from the label on the top left portion of the home screen. For detailed information on how to override values from the web user interface, see the Web User Interface section of this guide. After the outside air damper is overridden to 0% check to see that the correct voltage is being output from the proper I/O module. If the board output voltage is confirmed, check to make sure that the input voltage at the damper actuator matches the signal being sent from the controller. Once all of the signals have been checked, ensure that the outside air damper blades are completely closed. If the blades are not closed at 0%, they may need to be adjusted to the fully closed position. Next, override the damper to 100% and check the voltage signals to make sure that the proper voltage for 100% open is sent from the controller and received at the actuator. The damper blades should fully open once the voltage signal is confirmed. If any of the voltage signals were not correct, troubleshoot the connection from the controller to the actuator using the unit wiring diagram. Notice that when the value is overridden, the background for the label turns pink. This is to indicate that an override is present and to remind the user that it needs to be cleared. Make sure to set the damper back to auto before moving on to the next piece of equipment. For additional assistance on getting the correct voltage output from the I/O modules, contact the AAON controls department. Continue the steps used for the outside air damper on any other dampers that are being controlled by the JENEsys controller; for instance, the JENEsys controller may control the return damper, return bypass damper, or mixed air bypass damper. If the unit contains any valves that are operated by the JENEsys controller, perform the same tasks on the valves to ensure that they are getting the correct voltage from the controller and opening and closing properly.

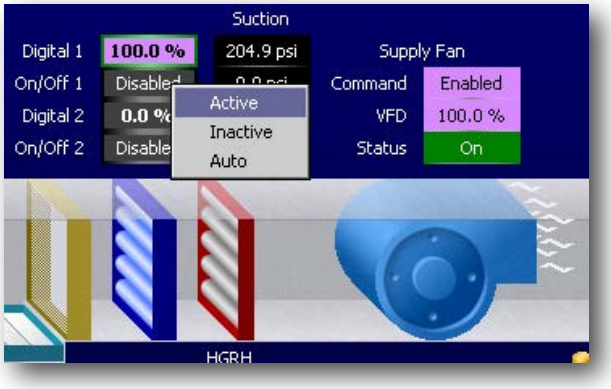


The supply fan operation should be checked once the dampers and valves have been verified. Before enabling the supply fan, make sure that air will flow through the unit. On 100% outside air units, this means that the outside air damper must be overridden to open. Units with interlocked outside and return dampers will not need to be overridden for supply fan functionality. If the air flow channel is opened, override the supply fan command to "Active." This will enable the 24VAC signal from the controller to the VFD. Verify that the controller output is sending the proper 24VAC signal from the supply fan enable output. Next, override the supply fan VFD to 50%. Check that this operation outputs the proper

voltage for the supply fan VFD signal out of the JENEsys controller. The VFD should ramp to 50% capacity and the supply fan should begin running at 50% speed. You should notice that the Supply Fan Status changes to "On" when the air flow is achieved. If the Supply Fan Status does not change from "Off" to "On" then the air flow switch input to the JENEsys board may not be operating correctly. Locate the supply fan air flow switch and make sure no kinks are found in the pressure tubing for the sensor. The high pressure side ought to be tubed into the supply fan leaving compartment and the low pressure side should be tubed into the supply fan entering compartment. The dial on the air flow sensor may need to be adjusted to properly monitor the air flow. For more help with the air flow sensor see the JENEsys Troubleshooting Guide or contact AAON. Once this speed has been verified, override the supply fan VFD to 100% and check that the VFD ramps from 50% to 100%. At this point, the supply fan should be running at full capacity and no other equipment should be operating. Once the supply fan VFD operation and the controller outputs have been checked, leave the supply fan overridden. Air flow will be needed to check the remaining outputs of the controller.



The next component to be verified is the mechanical cooling. Keep the fan running during the entirety of the cooling equipment check. Begin the cooling verification with any digital compressors that may be present. Override the first digital compressor to 50%. At 50% the compressor should load for half of a 15 second window and then unload for the second half of a 15 second window. Verify that each load and unload period takes approximately 7.5 seconds. Once all digital compressors have been checked at 50%, override them to 100%. At 100% the digital compressors should be continually loading and never unload. After all digital compressors have been verified, move on to the on/off compressors if applicable. Override each of the on/off compressors to "Active" and ensure that they operate correctly.



While the compressors are running, check to see that the condenser fans are operating properly on air cooled units. If the condenser fans are controlled off of fan cycle switches, the fans should not begin running until the discharge pressure rises above the threshold of the fan cycle switches.

If the condenser fans operate from a VFD controlled by the JENEsys controller, override the fan speed to 100% and check that the condenser fans come on and the VFDs ramp to 100% capacity.

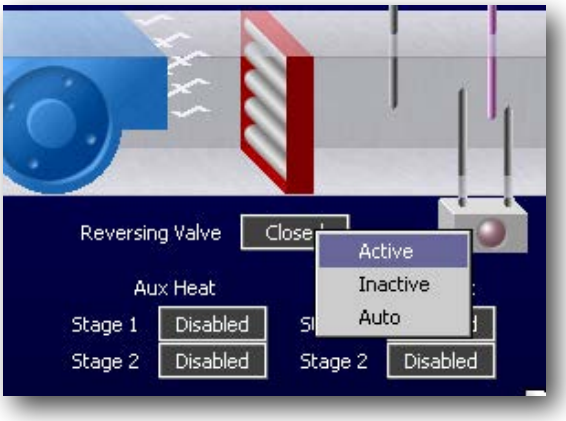
Verify that the high pressure switches work on the compressors by overriding the condenser fans to 0% for VFD head pressure controlled units, or by removing the 24 VAC power signal to the condenser contactor in fan cycle switch controlled units. Once the head pressure rises above the threshold for the high pressure switches, the compressors should be terminated by the high pressure switch. Verify that this occurs.

After the compressors have been shut down by tripping the high pressure switches, bring the condenser fans back on by overriding the VFD to 100% or by replacing the 24 VAC power signal to the condenser contactor. Manually reset the high pressure switches and verify that the compressors come back on and continue their operation.

Next, pull the wire on the low pressure switch to verify that the lower pressure switches are properly wired to terminate the compressors. As you pull the wire for each low pressure switch, verify that the associated compressor is shut down. After verifying that the low pressure switches will shut down the compressors, replace the connection to the low pressure switch and see that the compressor continue their operation.

For units with hot gas reheat, continue running the compressors while you verify that the hot gas reheat is operating properly. For modulating hot gas reheat, override the hot gas reheat percentage to 100% and verify that the hot gas is being passed to the hot gas reheat coil. Reset the modulating signal to auto after verifying that it is working correctly. For on/off stages of reheat, override the reheat to active and verify that the hot gas is sent to the hot gas reheat coil. After verifying operation, return all reheat values to auto.

In units that operate as heat pumps, verify that the reversing valve is working correctly. With the compressors still running, override the reversing valve to active forcing it to open. This should reverse the refrigerant and cause the unit to begin heating operations. Verify that the reversing valve is working correctly and that the unit has begun heating. Once heating is verified, set the reversing valve back to auto.



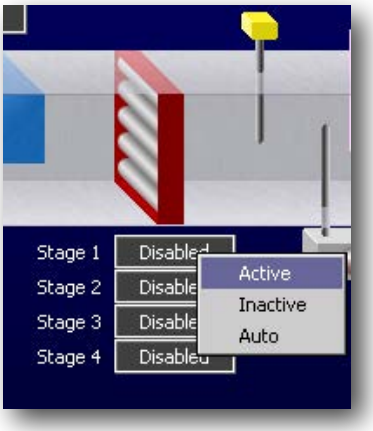
Now that all compressor functions have been verified, set the compressors back to auto. This should cause the compressors to turn off and the indicators to read 0% or Disabled. Set all condenser fan overrides back to auto. This will allow the controller to take control back of the condenser fans.

For chilled water cooling units, override the water valve to 100% and verify that the proper signal is being sent to open the valve. Once the valve operation has been verified, set the water valve signal back to auto.

At this point, everything associated with the compressor testing should be set to auto. Only the supply fan should continue running in the overridden state.

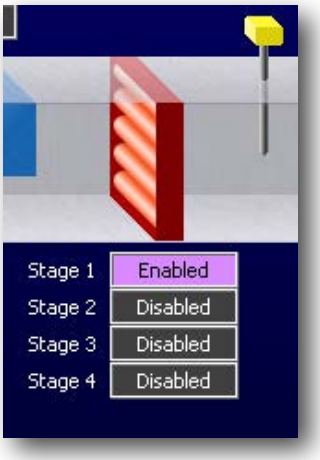
Now that all of the cooling operations have been verified, it is time to check the operations of the heating sections of the unit.

For modulating gas heating, override the modulating gas heat to active to enable the mod gas board to operate the heating. If the setpoint is warmer than the supply air temperature, the modulating gas board should begin to open the modulating gas valve. After operation of the modulating gas board has been verified, set the command for the board back to auto to disable the board.



Override SCR Electric heat to 100% and verify that the electric heat runs at 100%. After checking the SCR heat, reset the override to auto.

Units with staged heat should bring on the heat exchanger stages one at a time. Begin by overriding stage one to active and verify that the first heat exchanger is operating successfully. Continue this operation on each stage of heat until all stages have been verified to operate successfully. Reset all overrides on the heat exchangers to auto.

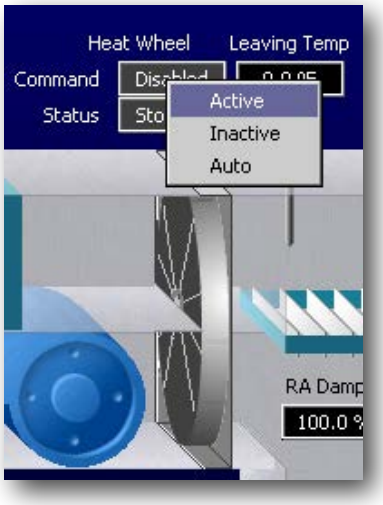


For steam or hot water heating units, override the steam/hot water valve to 100% and ensure that it opens correctly. After the operation of the valve is confirmed, reset the override to auto.

At this point, everything associated with the heating test should be set to auto. Only the supply fan should continue running in the overridden state.

The remainder of the start up sequence will test to see if optional equipment is working correctly. If no additional optional equipment exists on the unit, skip to the end of the start up guide to return the unit to normal operation.

If the unit has a heat wheel, override the heat wheel to active. Verify visually that the heat wheel is turning. If the unit has a heat wheel status sensor, ensure that the heat wheel status is being read properly by the controller and the status reads “Running” on the web user interface. Once the heat wheel operation has been checked properly, reset the heat wheel override to auto. If applicable, see that the heat wheel rotation status returns to “Stopped.”



Next check the operation of any additional fans that the unit may have. This may include exhaust fans or return fans. Override the fans to Active and the fan speeds to 100%. Verify that the VFD controlling the fans ramps to 100% and that the fans begin to run. After run status is confirmed for each fan, reset the overrides to auto.

If any other additional equipment exists on the unit, override the equipment using the home page. Verify that the equipment runs, then reset the overrides to auto.

Once all of the equipment has been verified on the unit, reset the overrides on the supply fan to auto. Make sure that no overrides are left on in the unit. At this point, all inputs and outputs have been verified by the controller. If the unit is ready to operate, leave the System Enable setpoint "Enabled." If there is still some work to be done before the unit is ready to operate, leave the System Enable setpoint "Disabled" until the unit is ready to operate. The System Enable works as a software shutdown to the unit.

For information on setting up schedules and network protocols, see the Web User Interface and Network Interface sections of this document.

Mobile Interface

Information on how to test outputs with AAON Link is available from within the app.

LCD Interface

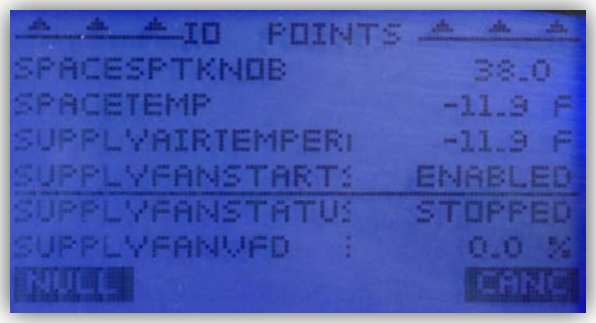
The outputs for the unit can be tested on the IO Page of the points section of the LCD interface. **It is important to note that any changes made to the outputs from the LCD Interface are directly overriding the outputs and will need to be cleared before the unit will operate properly.** Testing the outputs with the LCD interface will consist of manually overriding the equipment, making sure that the proper voltages are sent from the controller, and verifying that the equipment responds to the controller's signal.

The first outputs that should be tested are the dampers and valves. These pieces of equipment are important for safe operation of the rest of the unit, and should therefore be checked first before any other equipment is brought on. Begin by locating the OADamper output on the IO Points page of the LCD Interface. Set the OADamper to 0%. For more detailed information on how to use the LCD interface to change values, see the LCD Interface section of this guide. After the outside air damper is overridden to 0% check to see that the correct voltage is being output from the proper I/O module. If the board output voltage is confirmed, check to make sure that the input voltage at the damper actuator matches the signal being sent from the controller. Once all of the signals have been checked, ensure that the outside air damper blades are completely closed. If the blades are not closed at 0%, they may need to be adjusted to the fully closed position. Next, override the damper to 100% and check the voltage signals to make sure that the proper voltage for 100% open is sent from the controller and received at the actuator. The damper blades should fully open once the voltage signal is confirmed. If any of the voltage signals were not correct, troubleshoot the connection from the controller to the actuator using the unit wiring diagram. For additional assistance on getting the correct voltage output from the I/O modules, contact the AAON controls department. Continue the steps used for the outside air damper on any other dampers that are being controlled by the JENEsys controller; for instance, the JENEsys controller may control the return damper, return bypass damper, or mixed air bypass damper. If the unit contains any valves that are operated by the JENEsys controller, perform the same tasks on the valves to ensure that

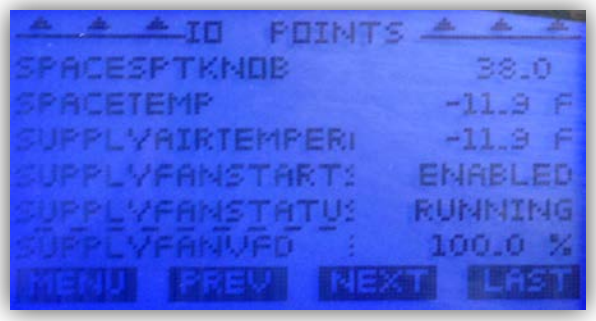
LCD Interface Overriding OADamper Output

they are getting the correct voltage from the controller and opening and closing properly. Once all of the dampers and valves have been verified, make sure to set each of them back to NULL in order to free up the overrides and let the unit control the equipment.

The supply fan operation should be checked once the dampers and valves have been verified. Before, enabling the supply fan, make sure that air will flow through the unit. On 100% outside air units, this means that the outside air damper must be overridden to open. Units with interlocked outside and return dampers will not need to be overridden for supply fan functionality. Once the air channel is open for supply fan operation, override the SupplyFanStartStop to "Enable" to energize the fan relay. Next, override the SupplyFanVFD to 50%. Check that this operation outputs the proper voltage for the supply fan VFD signal out of the JENEsys controller. The VFD should ramp to 50% capacity and the supply fan should begin running at 50% speed. The SupplyFanStatus input should change from "Stopped" to "Running." If the supply fan status does not change then the air flow switch input to the JENEsys board may not be operating correctly. For more help with the air flow sensor see the JENEsys Troubleshooting Guide or contact AAON. Once the speed has been verified, override the supply fan VFD to 100% and check that the VFD ramps from 50% to100%. At this point, the supply fan should be running at full capacity and no other equipment should be operating. Once the supply fan VFD operation and the controller outputs have been checked, leave the supply fan overridden. Air flow will be needed in order to check the remaining outputs of the controller.



LCD Interface Overriding Supply Fan Relay Output

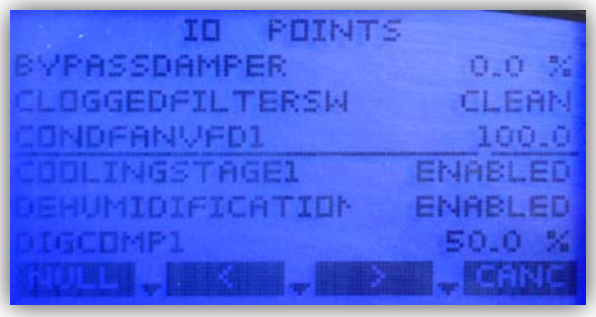


LCD with Supply Fan Relay and VFD Overridden

The next component to be verified is the mechanical cooling. Keep the fan running during the entirety of the cooling equipment check. Begin the cooling verification with any digital compressors that may be present. Override the first digital compressor to 50%. The digital compressor capacities will be labeled DigComp1, DigComp2, DigComp3, and DigComp4, if present. At 50% the compressor should load for half of a 15 second window and then unload for the second half of a 15 second window. Verify that each load and unload period takes approximately 7.5 seconds. Once all digital compressors have been checked at 50%, override them to 100%. At 100% the digital compressors should be continually loading and never unload. After all digital compressors have been verified, move on to the on/off compressors if applicable. Override each of the on/off compressors to Enabled (CoolingStage1, CoolingStage2, etc) and ensure that they operate correctly. Make sure to check which stages are on/off compressors and which stages are digital compressors. Only the on/off compressors will need to have their digital enable signal overridden. The Digital

LCD Interface Overriding Digital Compressor 1

compressors will enable their own relay outputs and only the capacity of the digital compressors will need to be overridden.



LCD Interface Overriding Condenser Fan VFD 1

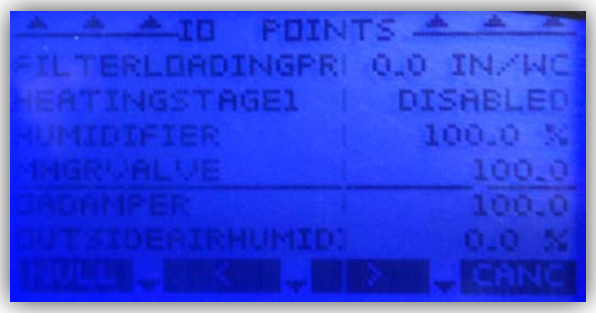
While the compressors are running, check to see that the condenser fans are operating properly on air cooled units. If the condenser fans are controlled off of fan cycle switches, the fans should not begin running until the discharge pressure rises above the threshold of the fan cycle switches. If the condenser fans operate from a VFD controlled by the JENEsys controller, override the fan speed to 100% (CondFanVFD1 and CondFanVFD2) and check that the condenser fans come on and the VFDs ramp to 100% capacity.

Verify that the high pressure switches work on the compressors by overriding the condenser fans to 0% for VFD head pressure controlled units, or by removing the 24 VAC power signal to the condenser contactor in fan cycle switch controlled units. Once the head pressure rises above the threshold for the high pressure switches, the compressors should be terminated by the high pressure switch. Verify that this occurs.

After the compressors have been shut down by tripping the high pressure switches, bring the condenser fans back on by overriding the VFD to 100% or by replacing the 24 VAC power signal to the condenser contactor. Manually reset the high pressure switches and verify that the compressors come back on and continue their operation.

Next, pull the wire on the low pressure switch to verify that the lower pressure switches are properly wired to terminate the compressors. As you pull the wire for each low pressure switch, verify that the associated compressor is shut down. After verifying that the low pressure switches will shut down the compressors, replace the connection to the low pressure switch and see that the compressor continue their operation.

For units with hot gas reheat, continue running the compressors while you verify that the hot gas reheat is operating properly. For modulating hot gas reheat, override the hot gas reheat percentage to 100% (MHGRValve) and verify that the hot gas is being passed to the hot gas reheat coil. Reset the MHGRValve signal to NULL after verifying that it is working correctly. For on/off stages of reheat, override the reheat to enabled (HGRHEnable) and verify that the hot gas is sent to the hot gas reheat coil. After verifying operation, return all reheat values to NULL to allow the controller to take control of the outputs.



LCD Interface Overriding Hot Gas Reheat Valve

In units that operate as heat pumps, verify that the reversing valve is working correctly. With the compressors still running, override the reversing valve to Enabled forcing it to open (ReversingValve.) This should reverse the refrigerant and cause the unit to begin heating operations. Verify that the reversing valve is working correctly and that the unit has begun heating. Once heating is verified, set the reversing valve back to NULL.

Now that all compressor functions have been verified, set the compressors back to NULL. This should cause the compressors to turn off and the indicators to read 0% or Disabled. Set all condenser fan overrides back to NULL. This will allow the controller to take control back of the condenser fans.

For chilled water cooling units, override the water valve to 100% (ChilledWaterValve) and verify that the proper signal is being sent to open the valve. Once the valve operation has been verified, set the water valve signal back to NULL.

At this point, everything associated with the compressor testing should be set to NULL. Only the supply fan should continue running in the overridden state.

Now that all of the cooling operations have been verified, it is time to check the operations of the heating sections of the unit.

For modulating gas heating, override the modulating gas heat to Enabled (HeatingStage1) to enable the mod gas board to operate the heating. If the setpoint is warmer than the supply air temperature, the modulating gas board should begin to open the modulating gas valve. After operation of the modulating gas board has been verified, set the command for the board back to NULL to disable the board.

LCD Interface Overriding SCR Electric Heat

Override SCR Electric heat to 100% (SCRElect) and verify that the electric heat runs at 100%. After checking the SCR heat, reset the override to NULL.

Units with staged heat should bring on the heat exchanger stages one at a time. Begin by overriding stage one to Enabled (HeatingStage1) and verify that the first heat exchanger is operating successfully. Continue this operation on each stage of heat (HeatingStage2, HeatingStage3, etc) until all stages have been verified to operate successfully. Reset all overrides on the heat exchangers to NULL.

For steam or hot water heating units, override the steam/hot water valve to 100% (HotWaterValve) and ensure that it opens correctly. After the operation of the valve is confirmed, reset the override to NULL.

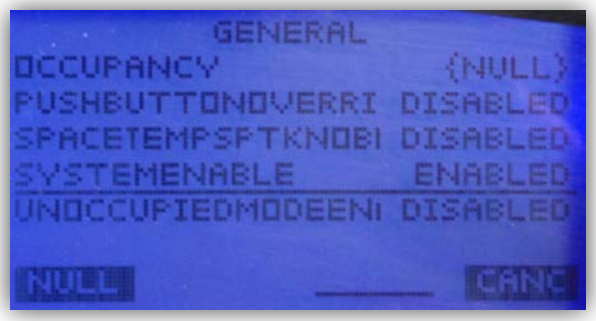
At this point, everything associated with the heating test should be set to NULL. Only the supply fan should continue running in the overridden state.

The remainder of the start up sequence will test to see if optional equipment is working correctly. If no additional optional equipment exists on the unit, skip to the end of the start up guide to return the unit to normal operation.

If the unit has a heat wheel, override the heat wheel to Enabled (HeatWheelEnable.) Verify visually that the heat wheel is turning. If the unit has a heat wheel status sensor, ensure that the heat wheel status is being read properly by the controller and the status reads “Running” on the LCD interface. Once the heat wheel operation has been checked properly, reset the heat wheel override to NULL. If applicable, see that the heat wheel rotation status returns to “Stopped.”

Next check the operation of any additional fans that the unit may have. This may include exhaust fans or return fans. Override the fans to Enabled (ExhaustFanStartStop, ReturnFanStartStop, etc) and the fan speeds to 100% (ExhaustFanVFD, ReturnFanVFD, etc.) Verify that the VFD controlling the fans ramps to 100% and that the fans begin to run. After run status is confirmed for each fan, reset the overrides to NULL.

If any other additional equipment exists on the unit, override the equipment using the same methods as above. Verify that the equipment runs, then reset the overrides to NULL.



LCD Interface Showing System Enable Setpoint

Once all of the equipment has been verified on the unit, reset the overrides on the supply fan to NULL. Make sure that no overrides are left on in the unit. At this point, all inputs and outputs have been verified by the controller. If the unit is ready to operate, leave the System Enable setpoint "Enabled." If there is still some work to be done before the unit is ready to operate, leave the System Enable setpoint "Disabled" until the unit is ready to operate. The System Enable works as a software shutdown to the unit.

Web User Interface

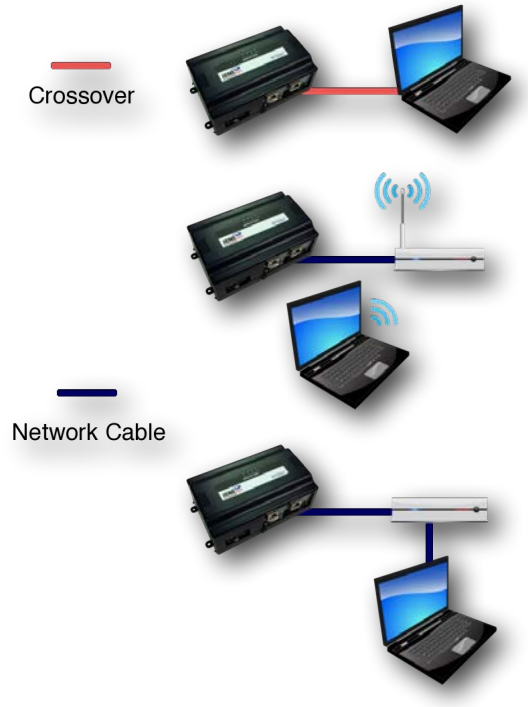
Overview

The web user interface (Web UI) is currently the most powerful interface for the JENEsys controller. The Web UI will facilitate changing setpoints, changing IP addresses, viewing and acknowledging alarms, viewing and overriding input and output values, configuring the network protocol, and monitoring overall system operation. The Web UI requires that the JENEsys controller be either connected to the same network as the computer accessing the interface, or connected directly to the computer using a crossover LAN cable. This guide will explain how to connect to the Web UI, how to navigate the Web UI, and how to make adjustments to the unit using the Web UI.

Connecting to the Web User Interface

***Note** Effective April 2013 all controllers will ship from the factory with **LAN 2** enabled at 192.168.**2**.101 in addition to LAN 1 as follows. When using LAN 2, simply substitute 192.168.**2**.xxx respectively for the following information.

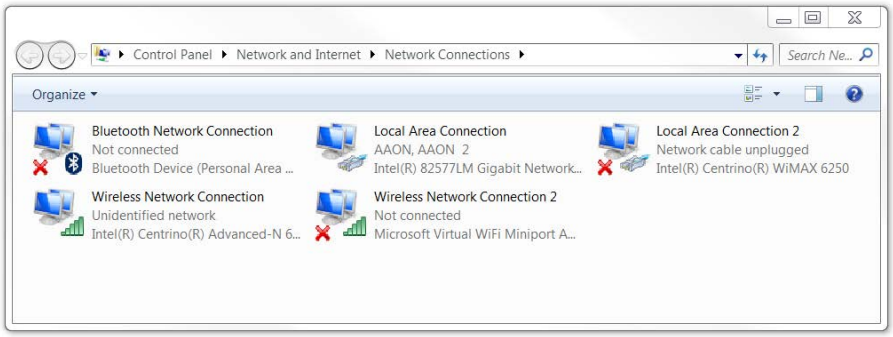
Before you can connect to the web user interface you will need to make sure that you have the controller connected to your local area network or use a crossover cable to connect directly to the controller. First, we will discuss connecting the controller directly to a computer. If the controller is not on a network you may wish to attach a laptop computer directly to the controller. For this method you will need to make sure that you have a crossover ethernet cable. Crossover cables are different from typical ethernet cables because the send and receive pins have been swapped on one end of the cable, allowing devices to connect together directly without passing their signals through a router or a switch. For a direct connection with crossover cables, the IP settings on the computer must be set up to match the network on the controller. By default, the controller is addressed at **192.168.1.101 for LAN 1** when it leaves the factory. However, this address can be changed, make sure you have the correct address before changing your IP settings. For controllers addressed at **192.168.1.101**, set the computer's IP address to some other value on the same 192.168.1.XXX network. This can be any number from 192.168.1.1 to 192.168.1.255 (excluding 192.168.1.101). We suggest using 192.168.1.50 as the IP address for the computer.



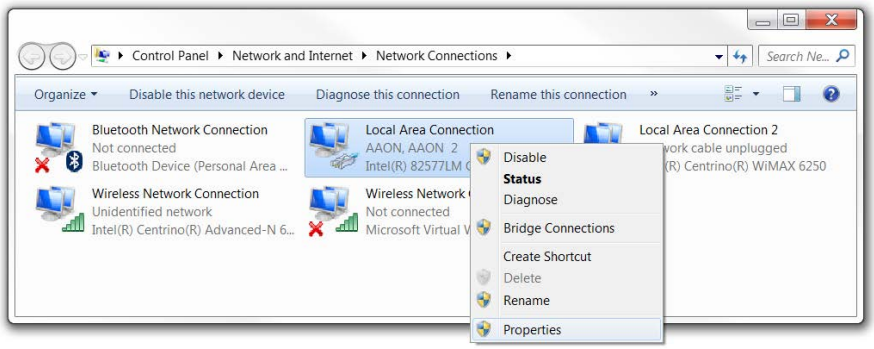
If the JENEsys controller is connected to a wireless router, then the computer can connect to the controller by connecting to the wireless router. Most routers will use DHCP to automatically give the computer an IP address that will work on the network. If you have trouble connecting to the controller through a wireless router contact the network administrator or the AAON Controls department.

If the JENEsys controller resides on a wired network, then the computer only needs to be on the same network. Contact the network administrator for information on how to connect to a network where a JENEsys controller resides.

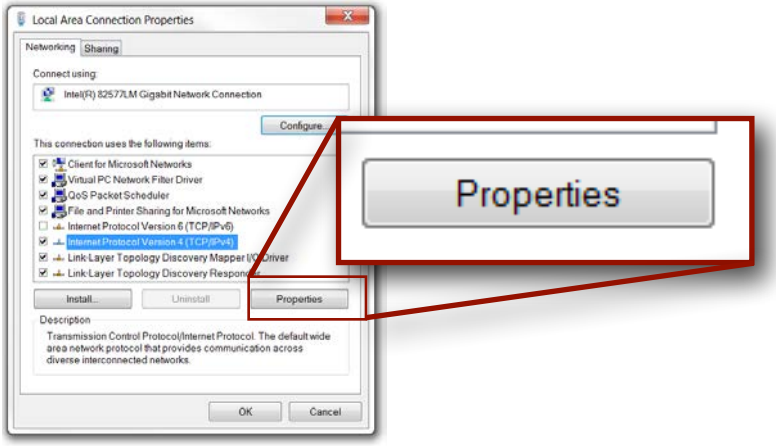
If the IP address of the laptop does need to be changed, on a windows machine this can be done through the adapter properties in the Network Connections control panel. You may need administrative privileges on the computer to edit the Network Connections. If you do not have administrative privileges, please contact your IT department. To get to the Network Connections in Windows XP and earlier, open up the Control Panel and then open “Network Connections.” For Windows Vista and later PCs, type “Network Connections” in to the search field at the bottom of the start menu and hit Enter.



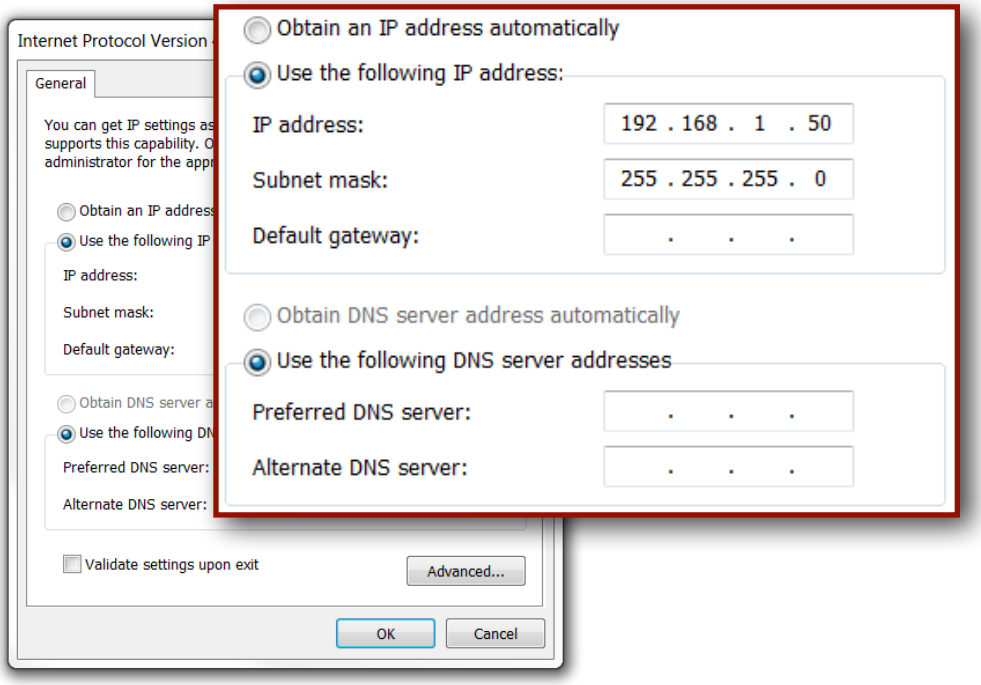
Once the Network Connections window appears, you will see “Local Area Connection” as one of the available connection types. Right-click on “Local Area Connection” and select “Properties”.



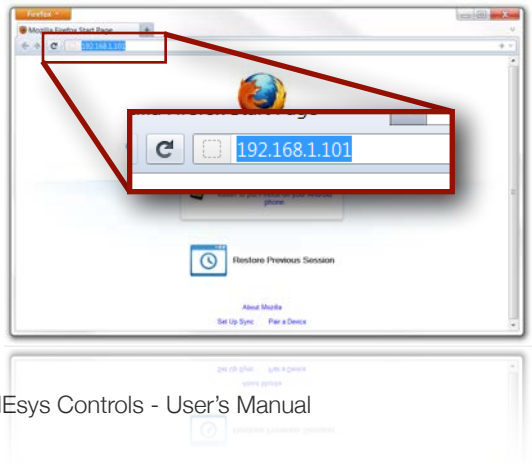
The Local Area Connection Properties page will appear and give you a number of different items to edit for your local area connection. To change the IP address for the needs of the JENEsys controller, select Internet Protocol Version 4 (TCP/IPv4) by clicking on the words on the right. Once Internet Protocol Version 4 is highlighted, click Properties.

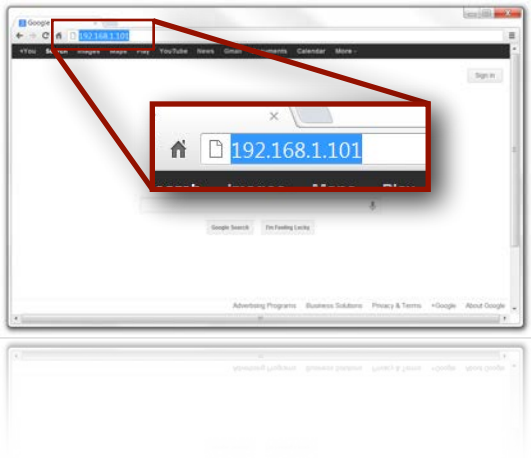


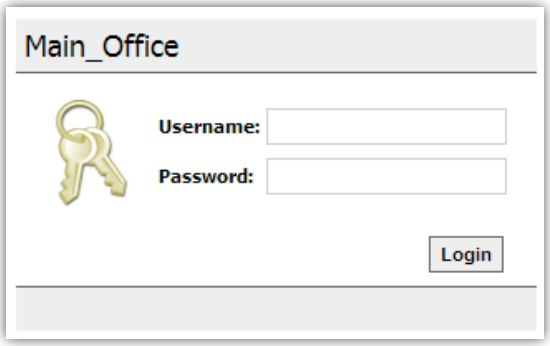
The Internet Protocol Version 4 Properties allow you to change the IPv4 address of the computer you are working on. It is advised that you save the current settings so that you can return the network adapter to its previous address after you are done connecting to the JENEsys controller. Once your previous settings have been written down or saved, enter an appropriate IPv4 address to connect to the JENEsys controller, such as 192.168.1.50 if the controller is still at the factory default address. The subnet mask should be set to 255.255.255.0. The rest of the settings can be left blank when connecting directly to the controller with a crossover cable.



After clicking OK, the computer's network address will be set up correctly in order to directly access the JENEsys controller with a crossover cable. The network properties windows can all be closed, and the JENEsys controller can now be accessed through a web browser. After clicking OK, the computer's network address will be set up correctly in order to directly access the JENEsys controller with a crossover cable. The network properties windows can all be closed, and the JENEsys controller can now be accessed through a web browser. Once all of the network settings are correct for the computer to connect to the JENEsys controller, a web browser can be launched to access the web user interface. The browser you choose must have the latest java drivers installed, these can be found at www.java.com. The AAON Controls department suggests using Google Chrome or Mozilla Firefox to access the JENEsys web user interface. Once you have a browser with java installed launched, navigate to the address of the controller. For factory default controllers, that address is **192.168.1.101**. Type the address into the address bar of your web browser.







If the connection to the controller is functioning properly, you will be met with a login page for the station. The name of the station will appear at the top of the login prompt. The default username is **administrator** and the default password is **aaon**. Enter the username and password into the login prompt in your web browser. After your username and password are accepted, the station will begin to load the niagaraAX platform. This may take several minutes if it is your first time connecting to a JENEsys controller. The first time you connect, your web browser will download several java modules which will allow it to properly display the web user interface pages. Each time you connect to a JENEsys controller the process will take less time.

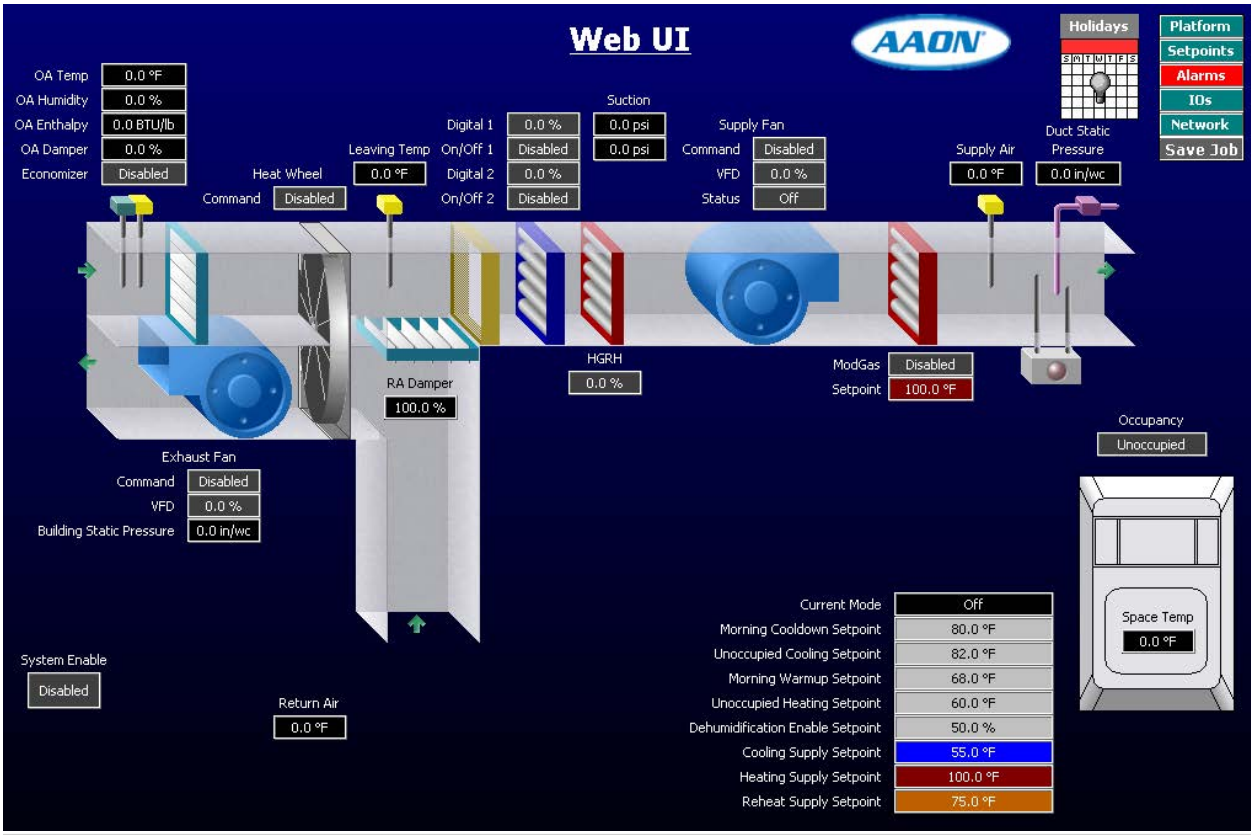
The modules will not need to be downloaded each time. Once all of the java modules load, the page will read that the niagaraAX platform is booting. If you have trouble launching the niagaraAX web user interface at this point, see the JENEsys Troubleshooting Guide or contact AAON. Once the niagaraAX platform has booted up, the controller will load up the home page of the Web UI.

Navigating the Web User Interface

The top right corner of every page in the Web UI is dedicated to displaying the main menu. This menu will allow you to get to different pages of the Web UI to view and change information on the unit. There are up to five available pages other than the home page on the Web UI. These pages include: **Platform**, a page for changing IP addresses, time, date, and other system information, **Setpoints**, a page for viewing and adjusting all of the setpoints in the unit, **Alarms**, a page for viewing, acknowledging, and diagnosing alarms on the unit, **IOs**, a page for viewing and troubleshooting the I/O modules attached to the controller, and **Network**, a page for viewing, enabling, and editing the network protocol settings for the unit. At the bottom of the menu there is a button which allows you to save any changes you have made to the station. To use the Save Job button, right click on “Save Job” and click “Save” in the menu that pops up. This will tell the controller to save the job; the controller will respond once it has finished saving and an indicator will pop up in the lower right corner of your computer screen that will report if the save job operation was successful.

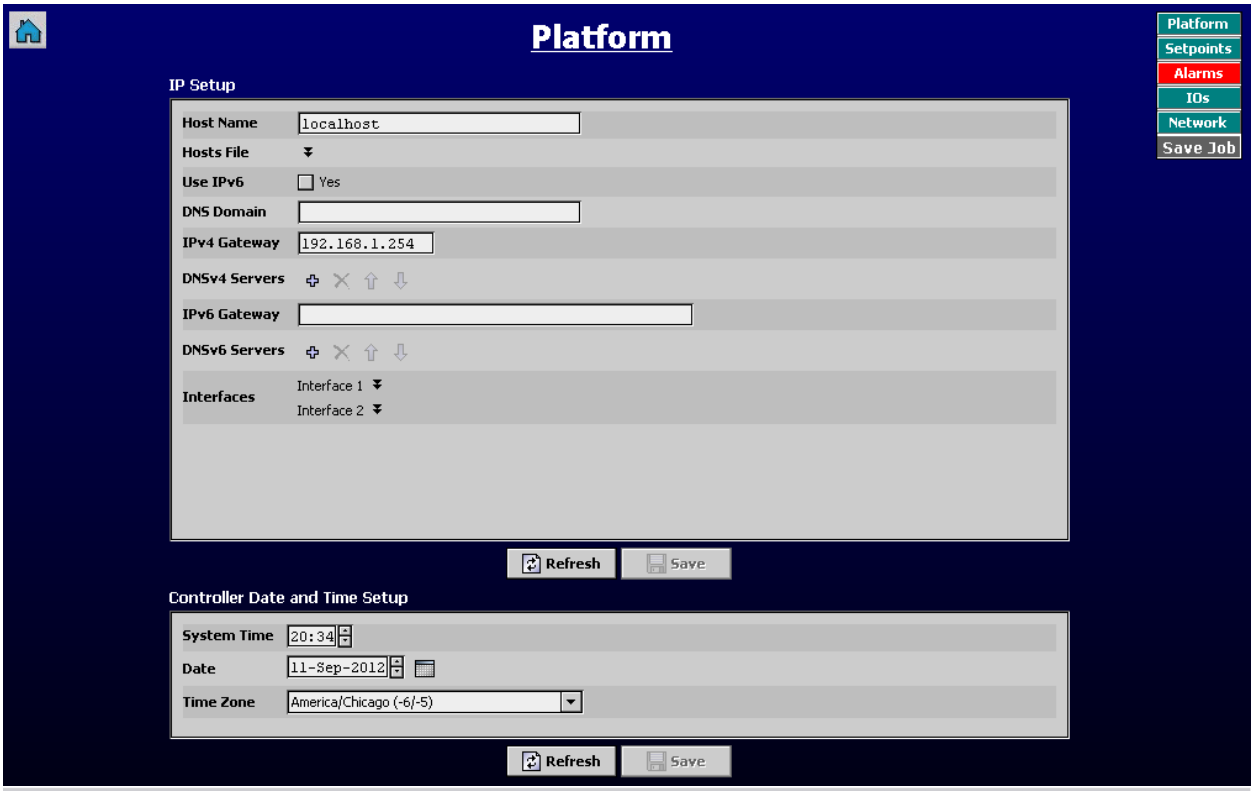
The top left corner of every page has a small home icon that will take you back to the home page. The home page does not have a button on the menu at the right side of the page and is only accessible by using the home button on the left side of the pages.

Home Page

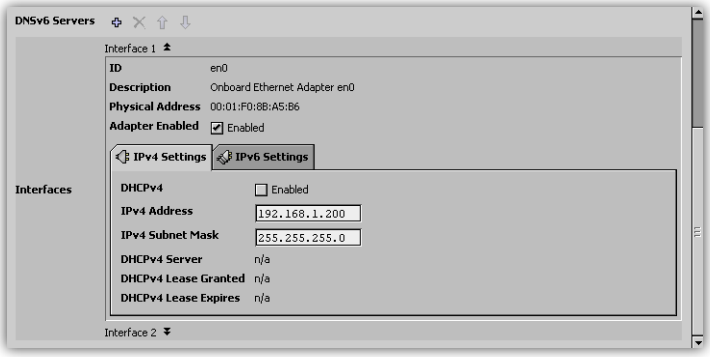


The JENEsys controller home page provides a quick view of the current status of the system. The commanded values and the status of the equipment can be seen on the home page complete with animated representations of the standard devices. The major mode enable setpoints are also visible on the home page, as well as the supply air temperature control setpoints for heating, cooling, and dehumidification mode. The home page will also show an indication for the system enable, occupancy, and current mode. From the home page, input and output values can be overridden to manually control the equipment.

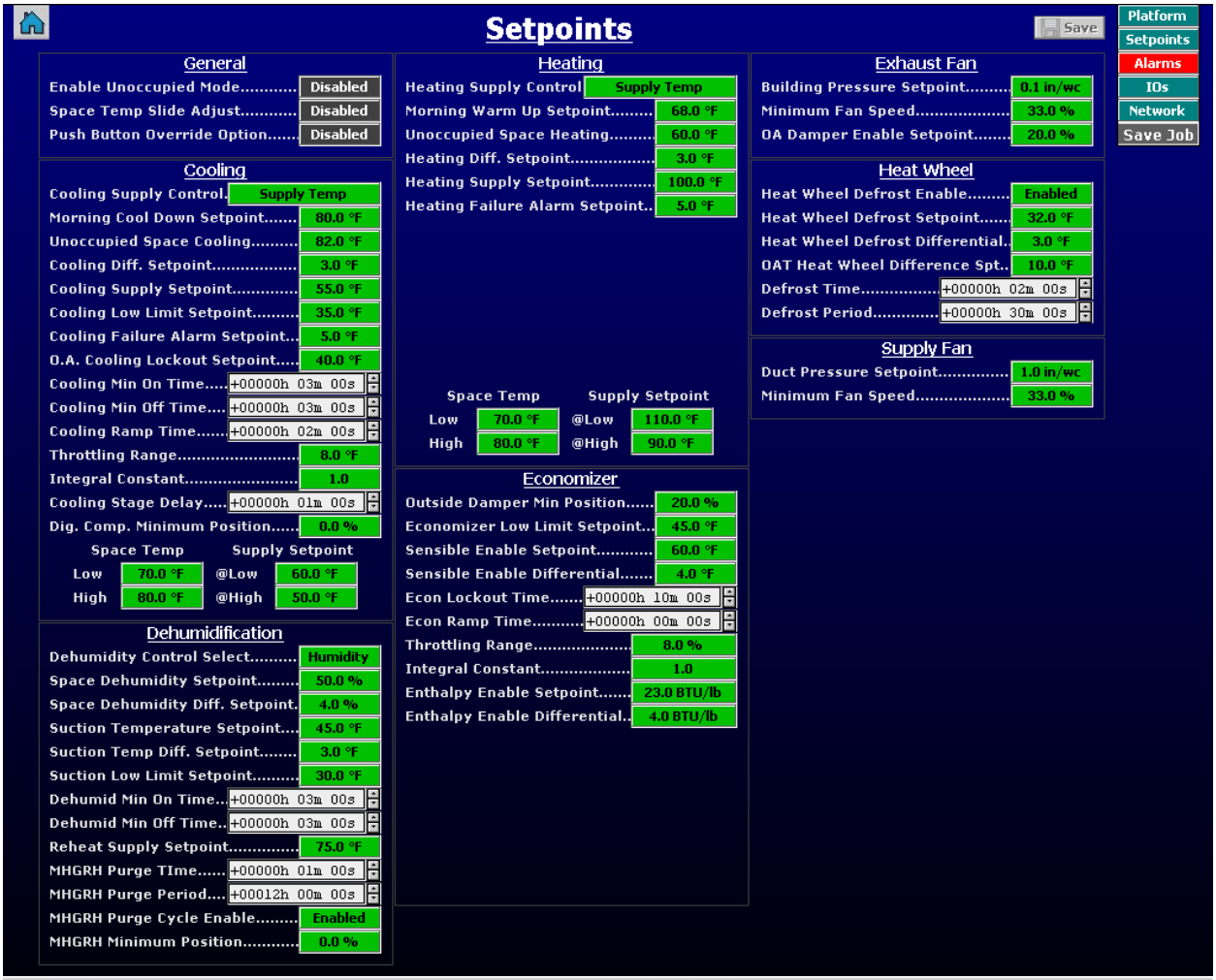
Platform Page



The JENEsys controller platform page allows the system hardware platform to be altered. This page gives access to the LAN port settings for both the primary and secondary ethernet adapters. From the platform page, the system date and system time can be changed to match the current time in the unit's geographical time zone. The Interfaces section of the IP Setup will let you change the IP Address information for both ethernet adapters. Interface 1 corresponds to the settings of the primary ethernet adapter, while Interface 2 corresponds to the secondary adapter settings. Remember to use the save button at the bottom of the platform page to save any changes. Changing the adapter settings will cause the JENEsys controller to reboot.

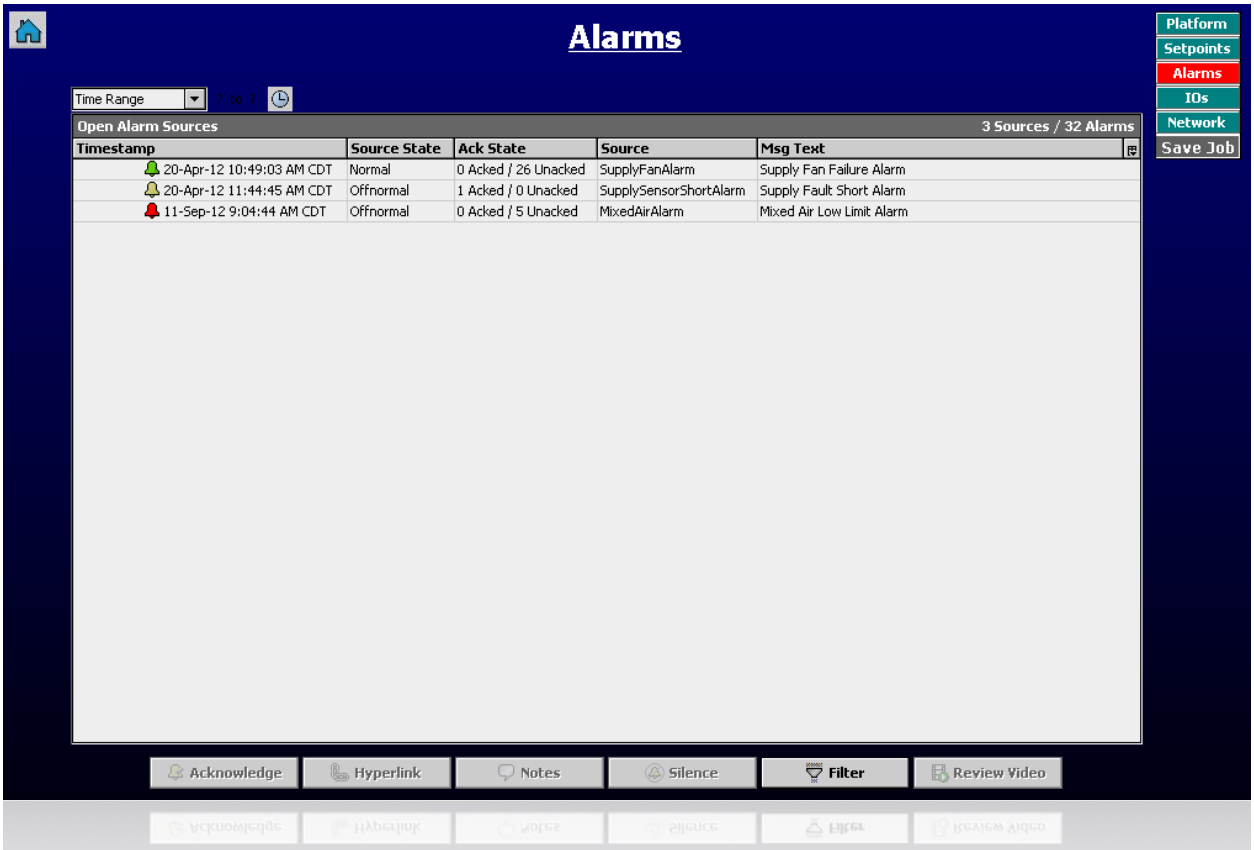


Setpoints Page


Setpoints
Save
Platform
Setpoints
Alarms
IOs
Network
Save Job
General
Enable Unoccupied Mode..... Disabled
Space Temp Slide Adjust..... Disabled
Push Button Override Option..... Disabled
Cooling
Cooling Supply Control. Supply Temp
Morning Cool Down Setpoint..... 80.0 °F
Unoccupied Space Cooling..... 82.0 °F
Cooling Diff. Setpoint..... 3.0 °F
Cooling Supply Setpoint..... 55.0 °F
Cooling Low Limit Setpoint..... 35.0 °F
Cooling Failure Alarm Setpoint... 5.0 °F
O.A. Cooling Lockout Setpoint.... 40.0 °F
Cooling Min On Time.... +00000h 03m 00s
Cooling Min Off Time.... +00000h 03m 00s
Cooling Ramp Time..... +00000h 02m 00s
Throttling Range..... 8.0 °F
Integral Constant..... 1.0
Cooling Stage Delay..... +00000h 01m 00s
Dig. Comp. Minimum Position..... 0.0 %
Space Temp Supply Setpoint
Low 70.0 °F @Low 60.0 °F
High 80.0 °F @High 50.0 °F
Dehumidification
Dehumidity Control Select..... Humidity
Space Dehumidity Setpoint..... 50.0 %
Space Dehumidity Diff. Setpoint. 4.0 %
Suction Temperature Setpoint.... 45.0 °F
Suction Temp Diff. Setpoint..... 3.0 °F
Suction Low Limit Setpoint..... 30.0 °F
Dehumid Min On Time... +00000h 03m 00s
Dehumid Min Off Time.. +00000h 03m 00s
Reheat Supply Setpoint..... 75.0 °F
MHGRH Purge TIme..... +00000h 01m 00s
MHGRH Purge Period.... +00012h 00m 00s
MHGRH Purge Cycle Enable..... Enabled
MHGRH Minimum Position..... 0.0 %
Heating
Heating Supply Control Supply Temp
Morning Warm Up Setpoint..... 68.0 °F
Unoccupied Space Heating..... 60.0 °F
Heating Diff. Setpoint..... 3.0 °F
Heating Supply Setpoint..... 100.0 °F
Heating Failure Alarm Setpoint.. 5.0 °F
Space Temp Supply Setpoint
Low 70.0 °F @Low 110.0 °F
High 80.0 °F @High 90.0 °F
Economizer
Outside Damper Min Position..... 20.0 %
Economizer Low Limit Setpoint... 45.0 °F
Sensible Enable Setpoint..... 60.0 °F
Sensible Enable Differential..... 4.0 °F
Econ Lockout Time..... +00000h 10m 00s
Econ Ramp Time..... +00000h 00m 00s
Throttling Range..... 8.0 %
Integral Constant..... 1.0
Enthalpy Enable Setpoint..... 23.0 BTU/lb
Enthalpy Enable Differential.. 4.0 BTU/lb
Exhaust Fan
Building Pressure Setpoint..... 0.1 in/wc
Minimum Fan Speed..... 33.0 %
OA Damper Enable Setpoint..... 20.0 %
Heat Wheel
Heat Wheel Defrost Enable..... Enabled
Heat Wheel Defrost Setpoint..... 32.0 °F
Heat Wheel Defrost Differential.. 3.0 °F
OAT Heat Wheel Difference Spt.. 10.0 °F
Defrost Time..... +00000h 02m 00s
Defrost Period..... +00000h 30m 00s
Supply Fan
Duct Pressure Setpoint..... 1.0 in/wc
Minimum Fan Speed..... 33.0 %

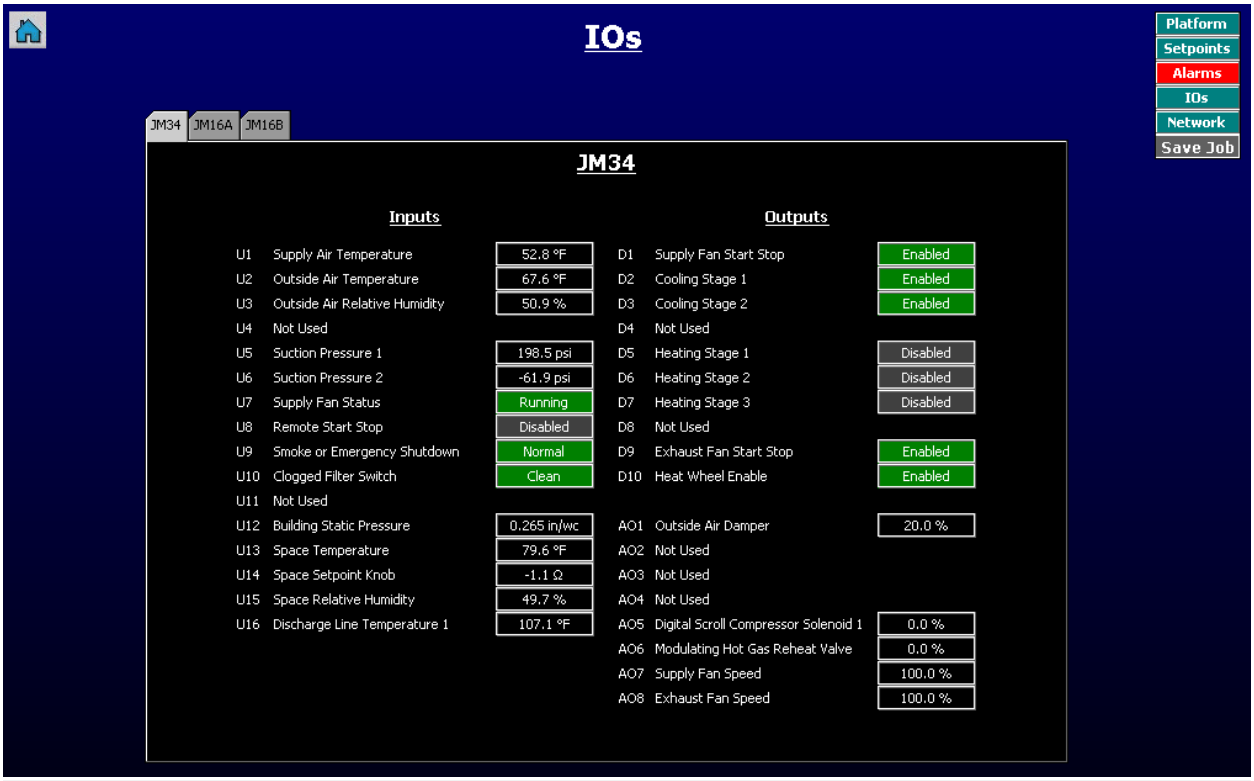
The setpoints page allows the control and enable setpoints to be modified. This page will display every adjustable setpoint being used to control the unit. The mode enable setpoints are available as well as more detailed setpoints like the stage timing setpoints, PID loop adjustments, and supply temperature reset setpoints. A save button is also available in the top right corner of the setpoints page for saving any changes made to the controller setpoints.

Alarms Page



The JENEsys web user interface alarms page displays a log of all of the unit alarms. From this page, the alarm status can be seen as well as the time and date for the alarms. This page can also be used to acknowledge alarms and view more detailed information about where the alarms were generated and what measures can be taken to check the alarms.

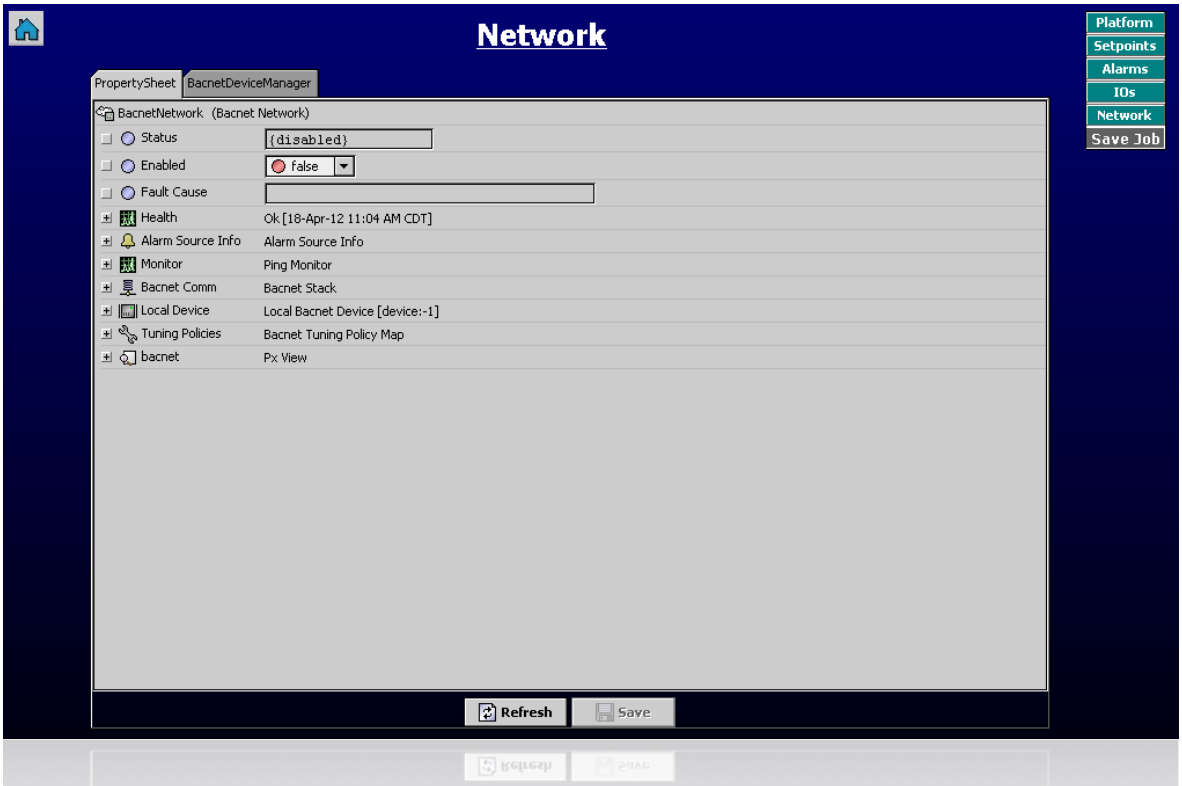
IOs Page


IOs
Platform
Setpoints
Alarms
IOs
Network
Save Job
JM34
JM16A
JM16B
JM34
Inputs
Outputs
U1 Supply Air Temperature 52.8 °F
U2 Outside Air Temperature 67.6 °F
U3 Outside Air Relative Humidity 50.9 %
U4 Not Used
U5 Suction Pressure 1 198.5 psi
U6 Suction Pressure 2 -61.9 psi
U7 Supply Fan Status Running
U8 Remote Start Stop Disabled
U9 Smoke or Emergency Shutdown Normal
U10 Clogged Filter Switch Clean
U11 Not Used
U12 Building Static Pressure 0.265 in/wc
U13 Space Temperature 79.6 °F
U14 Space Setpoint Knob -1.1 Ω
U15 Space Relative Humidity 49.7 %
U16 Discharge Line Temperature 1 107.1 °F
D1 Supply Fan Start Stop Enabled
D2 Cooling Stage 1 Enabled
D3 Cooling Stage 2 Enabled
D4 Not Used
D5 Heating Stage 1 Disabled
D6 Heating Stage 2 Disabled
D7 Heating Stage 3 Disabled
D8 Not Used
D9 Exhaust Fan Start Stop Enabled
D10 Heat Wheel Enable Enabled
AO1 Outside Air Damper 20.0 %
AO2 Not Used
AO3 Not Used
AO4 Not Used
AO5 Digital Scroll Compressor Solenoid 1 0.0 %
AO6 Modulating Hot Gas Reheat Valve 0.0 %
AO7 Supply Fan Speed 100.0 %
AO8 Exhaust Fan Speed 100.0 %

The JENEsys IOs page has a tabbed window displaying the inputs and outputs for each of the possible IO modules. If a module is not used, the inputs and outputs for the module will read “Not Used.” Each value on this page comes directly from the input or output point on the associated IO module. The IOs page will also indicate if any of the inputs or outputs is in a fault position and not working properly. Faults will be indicated with an orange color, shown in the image below.

Input point showing a fault

Network Page



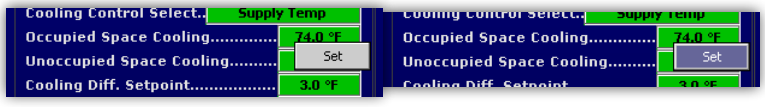
The JENEsys controller network page is used to configure the network. From this page, the network address and connection speeds can be modified as needed to connect with the building management system. The network page will be configured to use whichever network was selected when the unit was ordered. For information on changing the default network protocol for the unit, contact the AAON controls department (aaoncontrols@aaon.com).

Viewing and Changing Setpoints

The setpoints page of the web user interface is the appropriate page to view and change setpoints. While some setpoints are visible from the home page, it is preferred that the setpoints are edited on the setpoints page only. There are a number of different types of setpoints. Setpoints can be numeric values, like a temperature or a percentage, they can be binary values, like enabled/disabled, or they can be time values consisting of a certain time period.

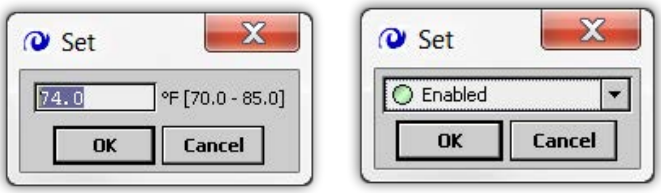
Numeric and Binary Setpoints

On the setpoints page numeric and binary values are both viewed as a box containing black text on a green background. Numeric and binary values are both accessed in the same way. To edit the values of numeric and binary setpoints, right click on the label displaying the value for the setpoint. A small popup will allow you to select the “Set” action to change the value for the setpoint.



The “Set” action will become available by right clicking the setpoints

Once the “Set” action is selected, a “Set” window will appear. The “Set” window will give you the acceptable range for numeric setpoints, and it will give you the true and false values for binary setpoints.



“Set” popup window for numeric (left) and binary (right) setpoints

For binary and numeric setpoints, once the “Set” action has been performed and the OK button has been clicked on the “Set” popup window, the value for the setpoint has been changed. However, it is always a good idea to save the station in addition to this setpoint change so that the defaults are saved immediately in case of power failure.

Timing Setpoints

The timing setpoints are different from the binary and numeric setpoints in the fact that they do not need to use the “Set” action to change their values. To change a timing setpoint simply click in the field containing the setpoint and adjust the value to the desired setpoint.

Timing setpoints

After changing a timing setpoint, the save button in the top right corner of the setpoints page will turn from inactive to active.

Inactive (left) and Active (right) Save button

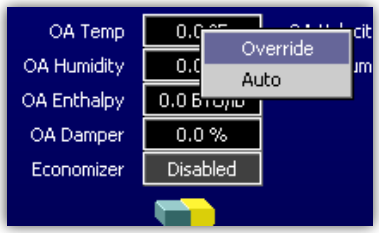
Click on the save button to save any changes made to the timing setpoints. It is also advised to save the station after changing any timing setpoints.

Overriding Values

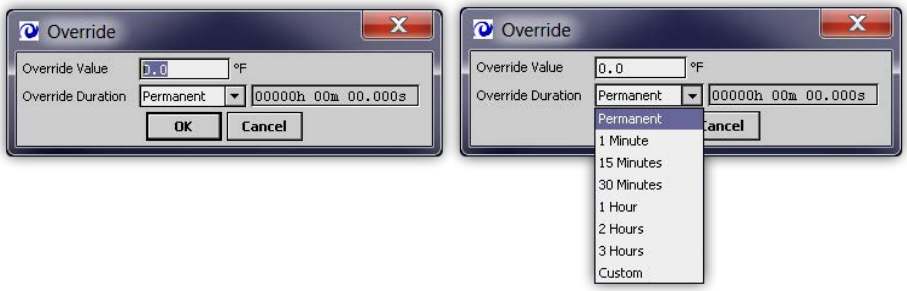
If a piece of equipment needs to be replaced or a device needs to be tested, value from the controller may need to be overridden. Overriding values can consist of locking a temperature sensor to a particular value, or turning a fan or other piece of equipment off or on for a particular length of time. The preferred location to override values for the JENEsys control system is the home page ( ).

Overriding Numeric Values

On the home page, all of the inputs will be black labels with white writing; all of the outputs will be gray labels with white text that change colors to indicate their status. To override a numeric value, such as the outside air temperature input, begin by right clicking on the label displaying the value of the input.

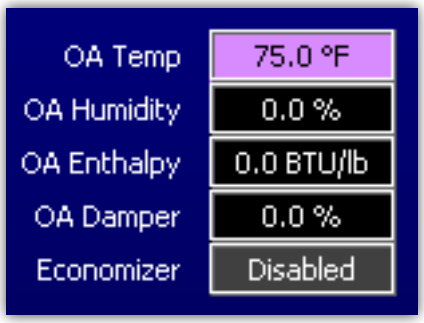


A menu will pop up that gives you the option to complete the “Override” action or the “Auto” action. Selecting “Auto” will clear out any override that is currently in place. Selecting “Override” will bring up the override action menu and allow the value to be overridden for a particular duration. The default duration is permanent, but any period of time can be entered for the override duration.



The “Override” popup contains fields for the new value and for a time duration

Once a numeric value has been overridden, it will change colors on the home screen to indicate that an override is present in that particular value. This pink color is a quick visual indication that a value has been overridden and is not being controlled by the JENEsys controller.



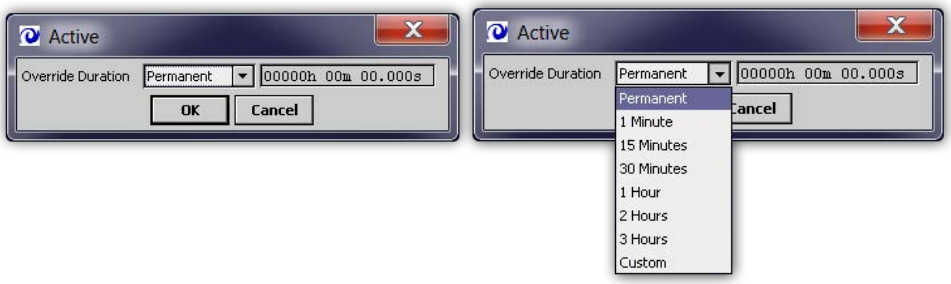
The OA Temp is pink due to the value being overridden

Overriding Binary Values

On the home page, all of the binary inputs and outputs will change colors to indicate their status. Typically, when a binary value is false it will have a gray background and when it becomes true it will have either a green, blue, or red background to visually indicate that it is active. Occasionally, the background color of a binary input will be red when the input is false

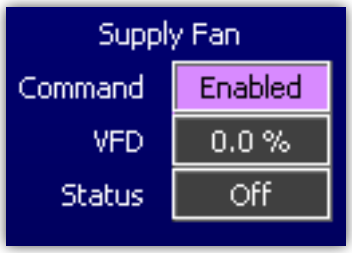
to denote a failure of some kind (for instance no flow from a water flow sensor.) To override a binary value, such as the supply fan command output, begin by right clicking on the label displaying the value of the output.

A menu will pop up that gives you the option to complete the "Active" action, the "Inactive" action, or the "Auto" action. Selecting "Auto" will clear out any override that is currently in place. Selecting "Active" will override the value to true and bring up the active menu to set a duration for the override. Similarly "Inactive" will override the value to false and bring up the inactive menu to set a duration for the override. The default duration is permanent, but any period of time can be entered for the override duration.



The "Active" popup contains a field for a time duration

Once a numeric value has been overridden, it will change colors on the home screen to indicate that an override is present in that particular value. This pink color is a quick visual indication that a value has been overridden and is not being controlled by the JENEsys controller.



The Supply Fan Command is pink due to the value being overridden

Viewing and Acknowledging Alarms

All of the alarms on the system can be viewed from the alarm console on the alarms page of the web user interface. The left section of the console will show the status of the alarms that are present. The bell icon on the left will let you know if the alarm is old or current and if the alarm has been acknowledged yet. If an alarm is still current, but it has already been acknowledged, then the bell icon will be yellow. If an alarm is old but not yet acknowledged, then the bell icon will be green. If an alarm is current and has not been acknowledged, then the bell icon is red. The "Ack State" will also give an indication about the number of a particular alarm that are present.

Open Alarm Sources		
Timestamp	**Source State**	**Ack State**
04-Dec-12 3:38:49 PM CST	Offnormal	1 Acked / 0 Unacked
04-Dec-12 3:37:44 PM CST	Offnormal	0 Acked / 3 Unacked
19-Apr-12 3:23:48 PM CDT	Normal	0 Acked / 1 Unacked

The alarm status portion of the alarm console

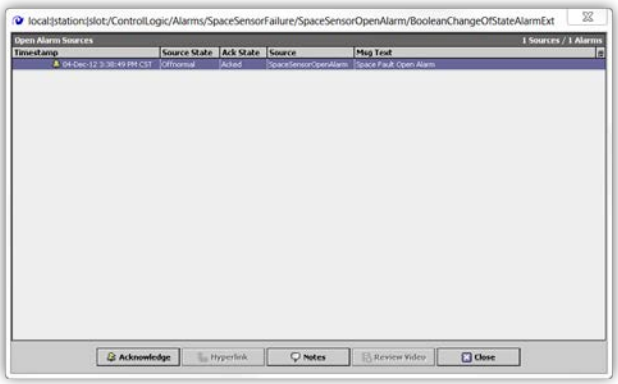
The right section of the console will show the source and the message associated with the alarms. The “Source” refers to the point in the logic where the alarm was generated. The “Msg Text” will give you a commonly used name for the alarm. The “Msg Text” can typically be cross referenced with the alarms defined in the Engineering Catalog Features & Sequences documentation.

The alarm source portion of the alarm console

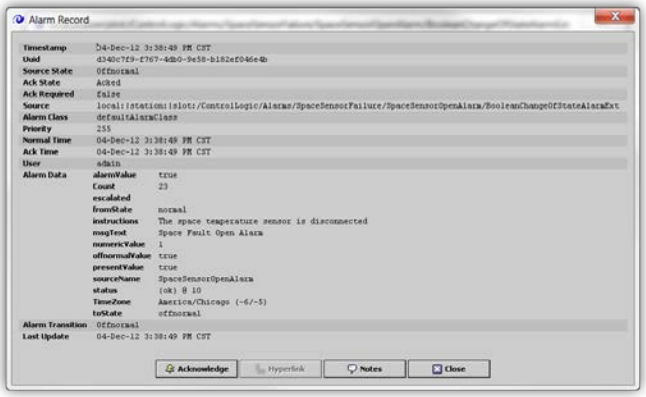
Source	Msg Text
SpaceSensorOpenAlarm	Space Fault Open Alarm
SupplySensorOpenAlarm	Supply Fault Open Alarm
CoolFailureAlarm	Cool Failure Alarm

By double-clicking on one of the alarms, the console can pull up even more detailed information about a particular alarm.

“Open Alarm Sources” popup



The first page that will appear is the “Open Alarm Sources” page. This page will show each individual alarm for a particular alarm source. Double-clicking on one of the alarms in this new popup will bring up the “Alarm Record.”



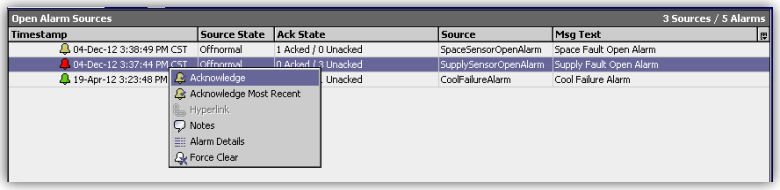
“Alarm Record” for a particular alarm

The “Alarm Record” displays all of the details associated with a single alarm event. These details include the time that the alarm occurred, the time that the alarm was acknowledged, the total count of such alarms, as well as instructions for the alarm and much more information. One helpful piece of information for troubleshooting an alarm is the “instructions” section of the “Alarm Record.”

Alarm Data	alarmValue	true
	Count	23
	escalated	
	fromState	normal
	instructions	The space temperature sensor is disconnected
	msgText	Space Fault Open Alarm
	numericValue	1
	offnormalValue	true
	presentValue	true
	sourceName	SpaceSensorOpenAlarm
	status	{ok} @ 10
	TimeZone	America/Chicago (-6/-5)
	toState	offnormal

“Alarm Data” section of the “Alarm Record” including the “instructions”

The instructions provide a brief description of what might be causing the alarm to go off. The instructions are a very good place to begin if you are trying to troubleshoot an alarm.

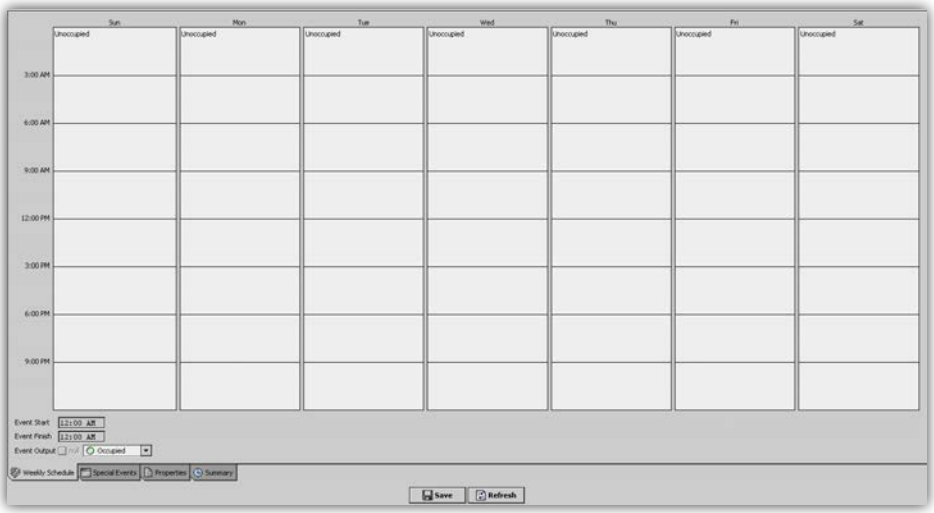


Once an alarm has been reviewed it can be marked as “Acknowledged” so that the next operator will know that the alarm has already been accounted for. In order to acknowledge an alarm, right click on the alarm in the main alarm console window. In the menu that pops up, select “Acknowledge” to acknowledge every alarm in the group; select “Acknowledge Most Recent” to acknowledge only the most recent alarm in the group.

Viewing and Changing Schedules

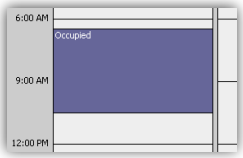
The unit occupancy can be set up to enable and disable occupied operation based off of a stand alone unit schedule.

On the home page there is an icon which links to the schedule editor. The standalone schedule editor can be launched by left clicking on the calendar section of the icon. Holidays can be indicated by clicking on the “Holidays” section of the schedule icon. The light bulb on the schedule icon will also light up or go out based on the current output of the schedule. If the schedule is calling for occupancy then the light will be on, if the schedule is not calling for occupancy then the light will not be illuminated.

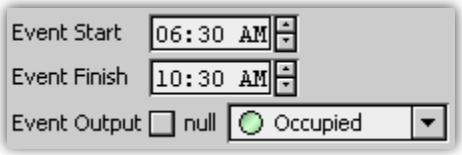


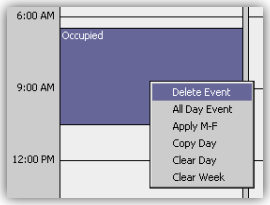
Weekly Schedule Editor

The unit standalone schedule editor is opened by left clicking on the calendar. This editor will allow you to create a weekly schedule. An occupancy block is created by left clicking on one of the days and dragging. A block will be created where your mouse drags indicating that the unit will be occupied for the times outlined by the block.



Once a block is created, it can be selected and then edited manually at the bottom of the schedule editor. Each event is given Occupied status by default, but the "Event Output" field at the bottom of the schedule editor allows for the events to be changed to Unoccupied events.

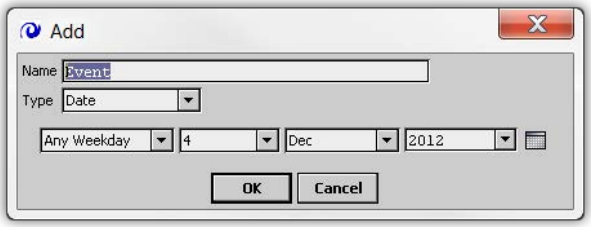




The weekly schedule editor also makes it easy to copy the schedule from one day to the rest of the days. It allows you to copy one day and paste it to each day that matches, or to copy a single day's schedule to all of the days Monday through Friday. For this special menu, right click on an occupied block and the menu will come up allowing the copying of an event block or day. The menu that pops up also creates the ability to delete a particular event or to clear an entire day or even an entire week. Once your weekly schedule is edited for the correct occupancy times, the Holidays schedule can be edited to create special holiday days that will not follow the typical occupancy rules. Clicking on the gray "Holidays" label on the schedule icon launches the Holidays special events editor.

Holiday Special Events Editor

The Holiday Special Events editor will allow for special events to be added to the calendar that constitute days that do not fit with the normal weekly occupancy schedule. Selecting “Add” at the bottom of the Holidays Special Events editor will open a “Add” dialog box that allows you to create a special event. The event is given a name and a type. There are a number of different types of events that can be added. Some holidays occur on the same date each year and can be added using the “Date” type, while other holidays occur on specific weekdays during specific months and can be added using the “Week And Day” type.



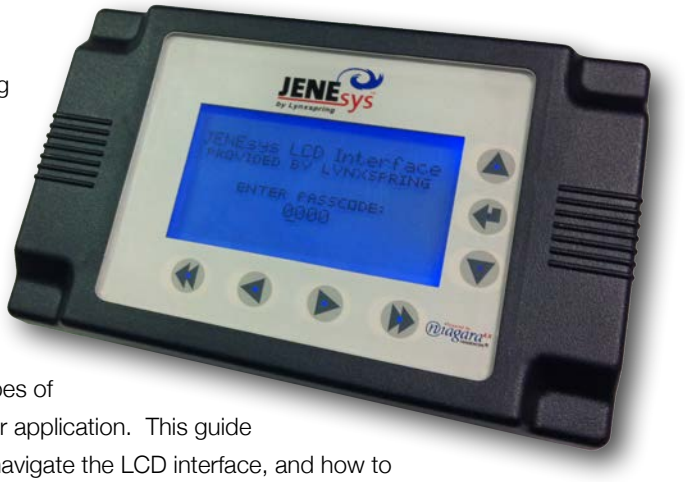
“Add” dialog for adding special events

Once the holiday is created, the standalone schedule will no longer use the standard weekly schedule for the holiday date, it will instead use the holiday schedule set up in the “Special Events” tab of the standalone schedule editor.

LCD Interface

Overview

Note: If the unit is networked and controlled by the BMS, the LCD will not be able to update Setpoints or Occupancy Scheduling since the network writes to a higher priority. The Network must first be manually disabled through the WebUi.



The LCD interface will facilitate changing setpoints, changing IP addresses, viewing and acknowledging alarms, viewing input values, and viewing and overriding output values. There are a few ways in which the LCD panel can be connected to the controller. Most of the time, the LCD interface will connect to the control via an optional adapter that mounted to the COM port inside the controller. However, the LCD interface can also be connected through the RS 485 connection port on the JENEsys controller. See the Connection Types section for information on how these different types of connections work and which one is appropriate for your application. This guide will explain how to connect the LCD interface, how to navigate the LCD interface, and how to make adjustments to the unit using the LCD interface.

Connection Types

There are a number of ways to connect and mount the LCD Interface panel. Deciding on a connection type will require taking a few different variables into consideration. The key factors for determining the type of connection and mount that will be needed for the panel are the distance it will be mounted from the JENEsys controller and the type of surface the panel will be mounted on. The most common use of the LCD Interface panel is to mount the panel directly on top of the controller using a shroud specifically designed to replace the top of the controller with the LCD panel. For a controller mounted option and any option where the LCD panel will not stretch more than 50 feet, the controller will require an option LCD COM card that is placed on the COM ports inside the controller. The optional card is installed at the factory before the unit is shipped. The card provides both power and data to the LCD interface panel, therefore on applications where the panel will reside within 50 feet on the controller, the panel will receive power from the controller and has no need for an external power source or on-board batteries. For applications that require the LCD interface panel to be mounted further than 50 feet from the JENEsys controller, an adapter is require to convert the RS-485 port to give data to the LCD interface panel. This adapter is wired directly to the RS-485 port and then a cable no longer than 4000 feet is connected from the adapter to the LCD interface panel. With the RS-485 port adapter, the LCD interface panel will have to be powered either using the battery bays on-board and four AA batteries or a wall plug AC adapter. If the LCD interface panel is going to be mounted in the space or on the side of the roof top unit, there is an optional trim piece that will aid in mounting the LCD panel to a flat surface. The trim piece will come shipped with units that are specified as local or remote mounted

LCD and Shroud

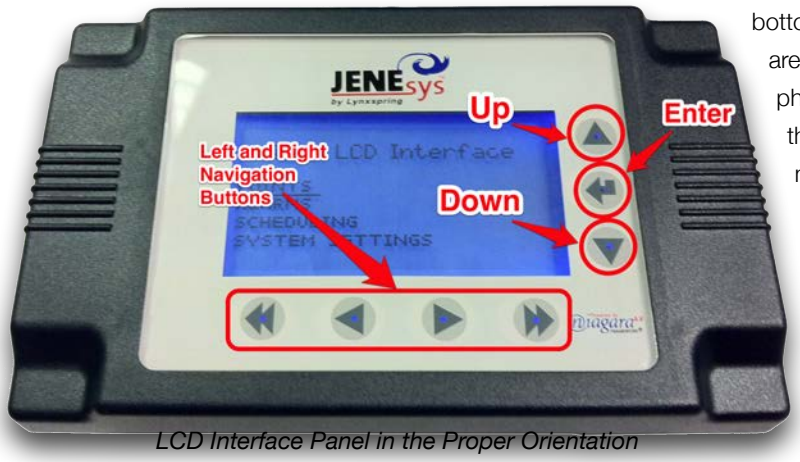
LCD Wall Mount Trim

RS-485 Adapter

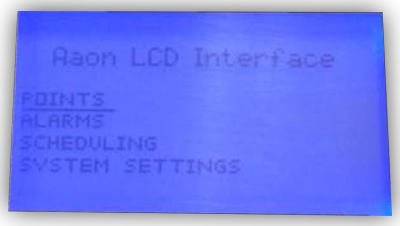
LCD interface panel instead of the shroud for controller mounted LCD interface panels.

Navigating the LCD Interface

There are seven navigation buttons on the LCD interface. It is important that attention is paid to the orientation of the LCD interface. When the interface is correctly oriented, there will be three navigation buttons on the right side of the panel and four navigation buttons along the bottom of the panel. These navigation buttons are touch-sensitive buttons and are not physical or mechanical buttons. This means that the buttons will react to touch and do not move or give any tactile feedback when pressed. There is an audible feedback, in the form of a beep from the LCD interface when the buttons are pressed. The volume of the audible feedback can be adjusted by pressing the power button on top of the LCD. Each time the power button is pressed the audible feedback will change volume. The LCD interface is protected with a passcode. When the LCD interface is not in use for at least 2 minutes it will timeout and lock the LCD screen. Upon first glance, the LCD panel will likely need to be woken up from this locked out mode by pressing any of the seven navigation buttons. The passcode lock page for the LCD interface will prompt for a 4 digit passcode. By default, the passcode for all JENEsys LCD interfaces from AAON is **2425**. To enter the passcode, use the up and down arrows along the right side of the LCD panel to adjust each digit up and down, and use the left and right buttons along the bottom of the LCD panel to switch which digit is being adjusted. Once the proper passcode is set on the four digits, press the enter key along the right side of the panel.



LCD Interface Panel in the Proper Orientation



LCD Interface Main Menu

After the passcode is entered, the LCD interface will display the main menu. From the main menu it is possible to navigate to four different areas. These areas are points, which show the setpoints and IO points, alarms, which displays alarms and allows acknowledgement of alarms, scheduling, which displays the unit standalone schedule and allows editing of the schedule, and the system settings, which facilitates changing of the IP addresses and system time and date information. The up and down navigation buttons will move the selection up and down and the enter button will select a particular item.

Viewing and Changing Setpoints

LCD Interface Points Section

The points section of the LCD interface will display the setpoints and the IO points for the JENEsys controller. From this section, the setpoints can be monitored and adjusted as needed. The inputs and outputs can be viewed and the outputs can be overridden to enable and disable equipment. The points page is broken down into sections to make locating particular setpoints easier. The left and right navigation buttons can be used to move from page to page inside the points section of the LCD interface. There are indicators along the bottom of the LCD screen that describe the function for the left and right

navigation buttons at any particular time. When the points section is first accessed, the outside left and right navigation buttons will jump to the first page and the last page, respectively. The inside left and right navigation buttons will move on page at a time with the center left button moving to the previous page and the center right button moving to the next page.

LCD Interface Editing Binary Point

To edit a setpoint, use the up and down arrows to move the cursor until it is underlining the desired point. Once the cursor is below the correct point, press the enter key. Pressing enter will select the desired point and allow the value for the point to be changed. This is indicated by the cursor extending to underline the value of the point as well as the point name. There are two types of points in the points section: numeric and binary. For binary points, pressing up or down will toggle the value of the point. Once the binary point is set to the desired value, pressing the enter button will save the changes to the setpoint. For numeric points, pressing up or down will change the value for a particular digit. It is important to note that when editing a numeric point, the up and down arrows will only adjust one particular digit at a time, the values will not roll over the next digit up. When the numeric point is selected, the digit furthest to the right (usually the tenths place) is first selected. A small gap will appear in the cursor under the digit that is currently being edited. The left and right arrows will move the gap to different digits so that the entire value can be changed. The figure on the right shows the gap in the cursor moved under the ones digit of the Cooling Supply Setpoint. In this position the up and down navigation buttons will adjust the ones digit for that setpoint. To adjust the tens digit or the tenths digit, the left and right navigation arrows will move the gap to either of those two digits. Once the value is set to the desired setpoint, the enter key will save the value. If a null value is preferred for a particular setpoint, press the far left navigation button during editing. This is indicated by the NULL designation above the far left navigation button. To cancel the editing of a setpoint, press the far right navigation button. This is indicated by the CANC designation above the far right navigation button. There are also indicators on the points page to show that there are more setpoints in a particular section than are visible. These are referred to as scroll indicators and they can be seen as arrows along the top of the LCD screen to indicate more setpoints above the currently visible setpoints, and as arrows along the bottom of the LCD screen to indicate more setpoints below the currently visible setpoints. The up and down arrows will navigate to move the setpoints that are off screen into the visible area. The last page of the points section shows the input and output points of the controller. The output points can be selected and overridden to turn the equipment off and on. The input points can not be adjusted.

LCD Interface Editing Numeric Point

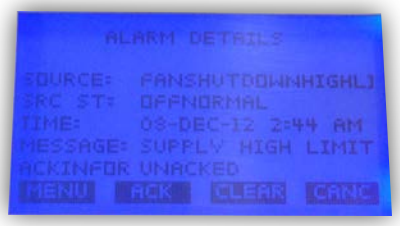
Viewing and Acknowledging Alarms

LCD Interface Alarm Menu

The alarms section of the LCD interface will display the current alarms on the unit and allow acknowledgement of those alarms. Once the Alarms section is selected from the main menu, the alarm menu will be presented. On the JENEsys controllers there is only one alarm recipient by default. This is the console recipient. The console recipient is accessed by pressing enter again on the Alarm menu. Once the console recipient is selected, a list of the current alarms will be presented. The alarms page will also show scrolling indicators, similar to the points pages, to indicate that there are more alarms which can be navigated to with the up and down navigation arrows. Once the console recipient is accessed and all of the alarms are

present on the LCD screen, the cursor can be moved up and down to select a particular alarm and view its details. Once the desired alarm is underlined by the cursor, press the enter button to select the alarm and view all of the information available about the alarm. From the alarm detail page, there are a number of options for addressing the alarm. The different options are available using the left and right navigation buttons. The far left navigation button returns to the alarms menu. The for right navigation button cancels any changes to the alarm and returns to the alarms menu page. The middle two left and right navigation buttons have much more functionality from the alarm details page. These two inside left and right navigation buttons allow the alarm to acknowledged or cleared. Acknowledging the alarm will report to the JENEsys controller that the alarm has been viewed by an operator. This acknowledgment will be replicated both on the web user interface and in the mobile interface. The alarm can also be cleared from the alarm details page. Clearing the alarm will delete the alarm completely from the unit. This force clear method will remove any information that the alarm was ever present. To acknowledge the alarm use the inside left navigation button indicated by the ACK designation above the button. To force clear the alarm use the inside right navigation button indicated by the CLEAR designation above the button.

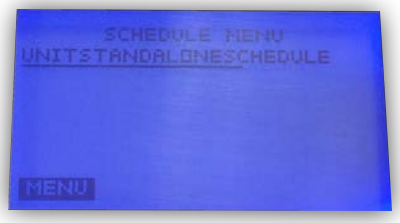
Console Recipient Alarms List



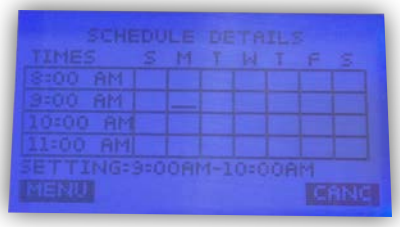
LCD Interface Alarm Detail Page

Viewing and Changing Schedules

The scheduling section of the LCD interface allows the ability to view and edit the local schedule of the JENEsys controller. Once the Scheduling section is selected from the main menu, the schedule menu will be presented. On the JENEsys controllers there is only one schedule by default. This is the unit standalone schedule. The unit standalone schedule is accessed by pressing enter again on the schedule menu. Once the unit standalone schedule is selected, the schedule details page will present a graphical schedule for the seven day week. By default, the JENEsys controlled units come out with a blank schedule that will cause all times to be unoccupied. To create a schedule, use the left, right, up, and down navigation arrows to move the cursor to the appropriate cell for the day and time that you wish to create a schedule entry. In the figure on the right, the cursor has been moved to the 9:00 AM on Monday cell. Once the cursor is on the appropriate cell, the enter button will open up the event editor and allow the entry to be configured. The event editor has three fields which can be edited to create a schedule event. The first field is the start time. The start time will be set to the value of the cell that was selected from the schedule details page. If a different start time is desired, move the cursor under the start time field and press the enter key. Once the enter key is pressed, the time will become highlighted and the up and down arrows can be used to adjust the highlighted portion. To change the rest of the time, use the left and right arrows to move the highlighted portion. The next field is the end time. The end time will be set to one hour after the start time by default, but it can be changed to any time between the start time and midnight. To edit the end time, use the up and down navigation buttons to move the cursor under the end time field and then press the enter



LCD Interface Schedule Menu



LCD Schedule Details Page

LCD Schedule Editing End Time

button. The end time will become highlighted and it can be changed in the same way as the start time. The final field is the value field. This field will tell the controller if the event you are entering should cause the unit to go occupied or unoccupied. To edit this field, move the cursor below the value field and press enter. The up and down navigation arrows can then be used to toggle between occupied and unoccupied. Once the event is completely configured to the desired times and value, press the inside left navigation button to save the changes, indicated by the SAVE designation above the button. Alternatively, the far left navigation button will return to the previous menu without saving the event, indicated by the MENU designation above the button; like wise, the far right button will cancel all changes, indicated by the CANC designation above the button. After a schedule has been created, the schedule detail page will indicate occupied times by filling in the occupied cells with black, and the schedule detail page will indicate unoccupied times by leaving the unoccupied cells blank. Any changes made to the schedule from the LCD interface will also appear on the schedule in the web user interface. Likewise, the schedule details in the LCD interface will match any unit standalone schedule information present in the web user interface.

LCD Interface Schedule Event Save

Schedule Details with Occupancy

Viewing and Changing System Settings

The system settings page will allow the LCD interface to change the IP address information and the time and date information. To change the IP address information, use the up and down navigation buttons to move the cursor under the Set TCP/IP Settings selection. Press enter when the cursor is in place. The TCP/IP Settings page will come up and allow the IP address, netmask, and gateway to be configured to match the desired network specifications. If any of the TCP/IP settings are changed from the LCD interface, the LCD will produce a prompt that alerts the user that the JENEsys controller will need to be restarted for the changes to take effect. This is a required step in changing the IP address for a JENEsys controller whether it is done through the web user interface or the LCD interface. The time and date information can also be modified form the system settings menu. To change the time, date, or time zone information, move the cursor below the desired field using the up and down navigation buttons and press the enter button. The value for the field will become highlighted and the up and down arrows can be used to adjust the values. Once the correct value is entered for the time and date field, press the enter button to save the changes.

LCD System Settings Menu

For additional information about the LCD interface, scan the QR code on the right with your smartphone or tablet to be taken to Lynxspring's website where pdf versions of the owner's manual and installation guide for the LCD interface are available.

The Lynxspring LCD documentation website can be found at:

http://resources.lynxspring.com/index.php/jenesys-home/jene-pc-series-hmi-devices?view=category&id=130

Network Interfaces

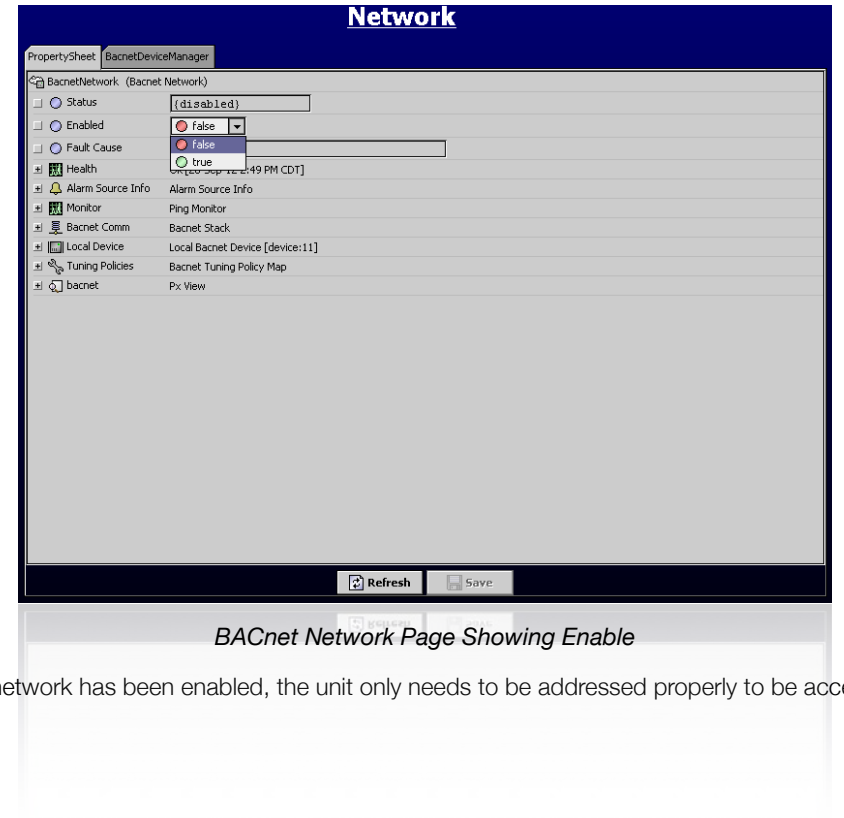
Overview

At the time of order, a particular network is selected as the default network for the unit. The network page of the web user interface will display the properties available for the default network selected when the order was placed. Each network has a slightly different set of properties and therefore it is important to make sure you match the network you are working with in the unit with the network your BMS is using. By default, each network will go out disabled. In order for the networks to operate properly they will need to be enabled through their property sheets at system start up.

BACnet

There are two ways to configure the BACnet network. The first way, which this section discusses, is to use the web user interface. The second way is to use the mobile application. The mobile application will not be addressed in this document, for information on configuring the BACnet network with the mobile application please looks for the instructions in the application.

After logging in to the web user interface, navigate to the network page. If the unit has been properly configured for BACnet the network page will present the property sheet for the BACnet network. Typically the unit will leave the factory with the network disabled. The first step in configuring the BACnet network is to make sure it is enabled on the property sheet. Make sure to save any changes to ensure they are written to the controller correctly.



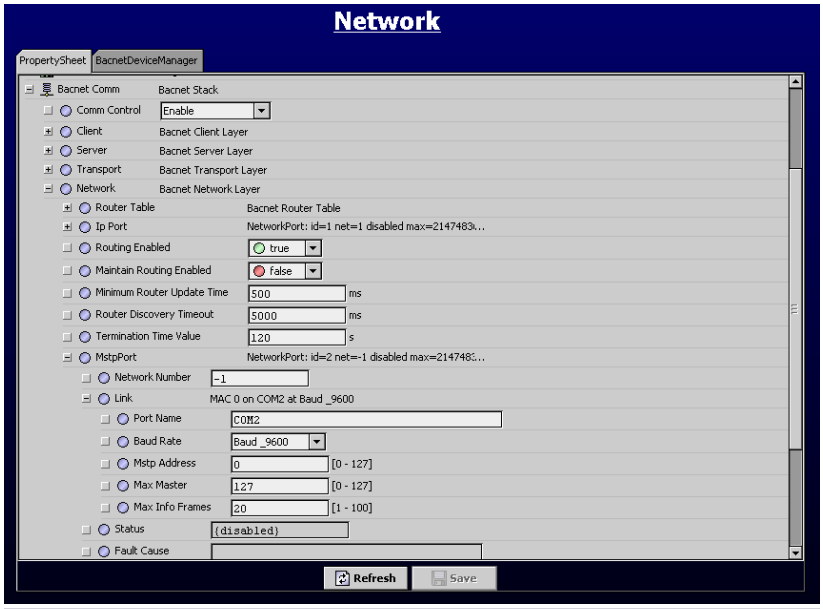
BACnet Network Page Showing Enable

Once the BACnet network has been enabled, the unit only needs to be addressed properly to be accessible through the BACnet network.

There are two separate protocols that can be used to transfer BACnet network data. The BACnet network can be set up to use MSTP or IP. MSTP uses the RS-485 port on the front of the controller and an MSTP address, while IP uses the ethernet port and IP address.

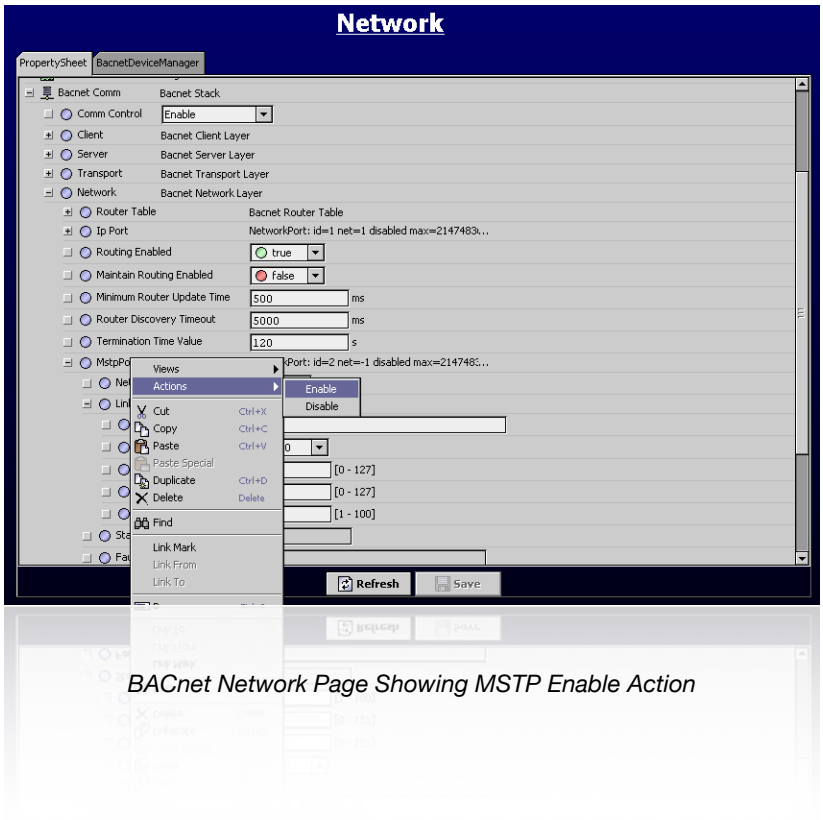
BACnet MSTP Addressing

The MSTP set up for the BACnet network will require setting the MSTP network number, MSTP address, and the appropriate baud rate. These four things as well as enabling the MSTP port, should be all that are needed to properly configure the BACnet network to use MSTP.



BACnet Network Page Showing MSTP Port Properties

Before the MSTP port can be utilized by the BACnet network, it must be enabled. In order to enable the MSTP port for the BACnet communication, right click on the “Mstp Port” property, move the mouse to “Actions” and select “Enable.” Either the MSTP Port or the IP Port can be enabled on the BACnet network, but they can not both be enabled at the same time.



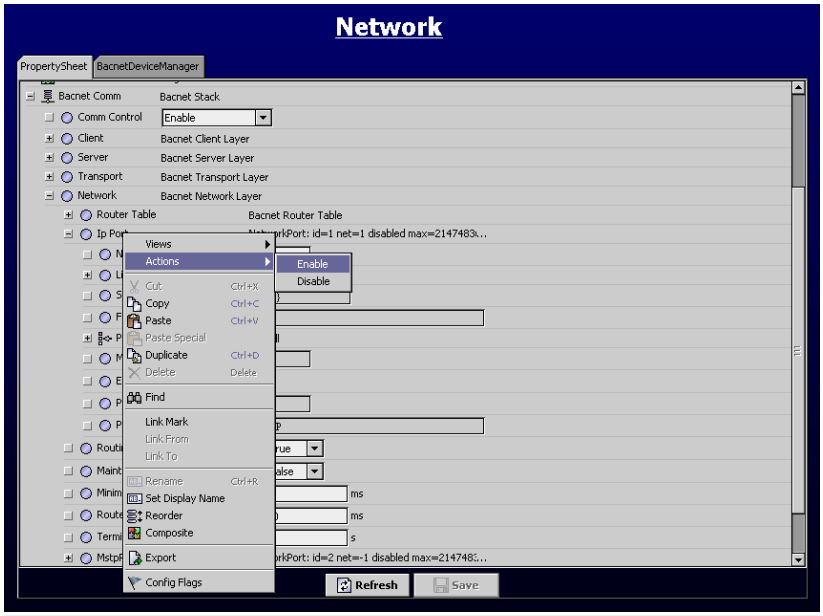
BACnet Network Page Showing MSTP Enable Action

Once the MSTP Port is enabled, input the proper Network Number for the BACnet Network in the Network Number field, which should be the first property under the MSTP Port property group. The Network Number will be determined by the contractor integrating the unit into the BACnet network. Next, the proper MSTP address can be entered into the Mstp Address field. Finally, select the proper baud rate from the drop down selection box in the MSTP Port Link properties.

BACnet IP Addressing

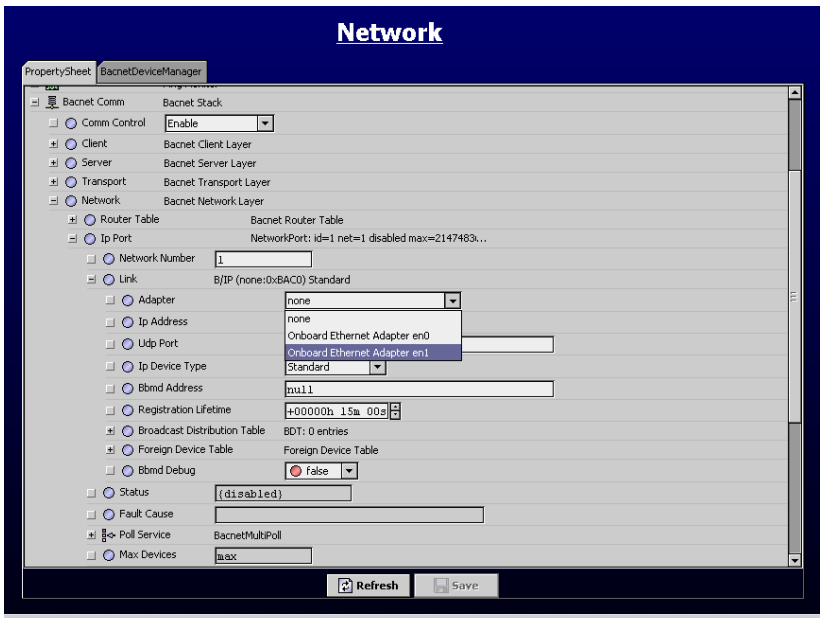
BACnet over IP can be set up on either of the two available ethernet ports. AAON suggests using the secondary port for BACnet IP communications and leaving the primary port available to connect to the web user interface. The IP addresses for the unit can be changed on the platform page of the web user interface. Begin by navigating to the platform page and enabling the secondary ethernet port. Set the secondary ethernet adapter settings to the desired BACnet IP settings. The BACnet IP network can also be run from the primary ethernet adapter, if desired. For more information on changing the IP address, see the web user interface section of this guide.

Once the ethernet adapter has been set up correctly for the BACnet network, the network page of the web user interface can be used to enable the BACnet IP network and to check that the right ethernet adapter is selected. In order to enable the IP port for the BACnet communication, right click on the “Ip Port” property, move the mouse to “Actions” and select “Enable.” This will enable the IP Port for the BACnet network. Either the MSTP Port or the IP Port can be enabled



BACnet Network Page Showing IP Port Enable

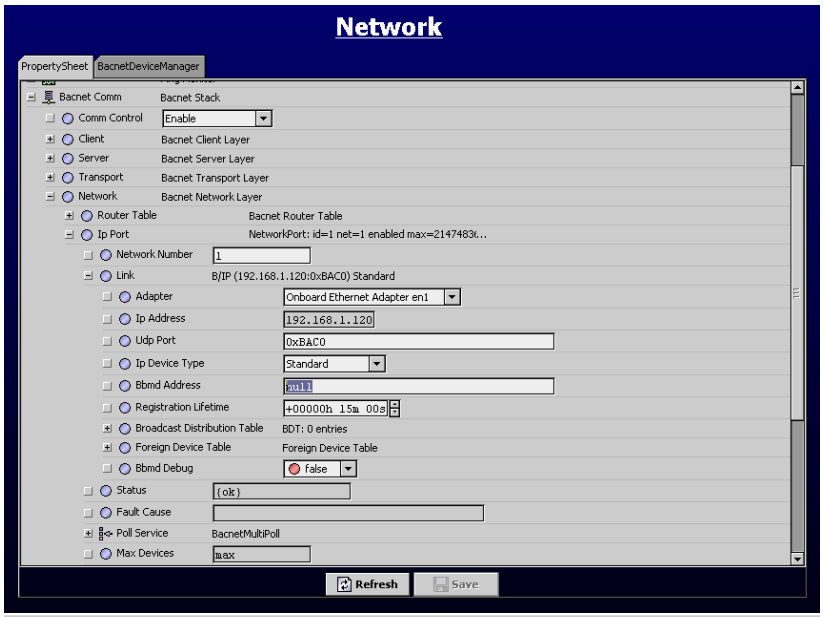
on the BACnet network, but they can not both be enabled at the same time. Once the IP Port is enabled, input the proper Network Number for the BACnet Network in the Network Number field, which should be the first property under the IP Port property group. The Network Number will be determined by the contractor integrating the unit into the BACnet network. Next, the proper ethernet adapter can be selected from the Link section of the Ip Port property. The



BACnet Network Page Showing Ethernet Adapter Selection

en0 adapter is the primary ethernet adapter and the en1 adapter is the secondary ethernet adapter. If the desired adapter reads “[DISABLED]” or “[DISCONNECTED]” it may need to be enabled on the platform page of the web user interface in the IP Setup section.

At this point, the BACnet protocol is ready to communicate over IP as long as the ethernet port is addressed and enabled properly. With BACnet over IP, there is also the option of using the JENEsys controller as a BBMD for BACnet

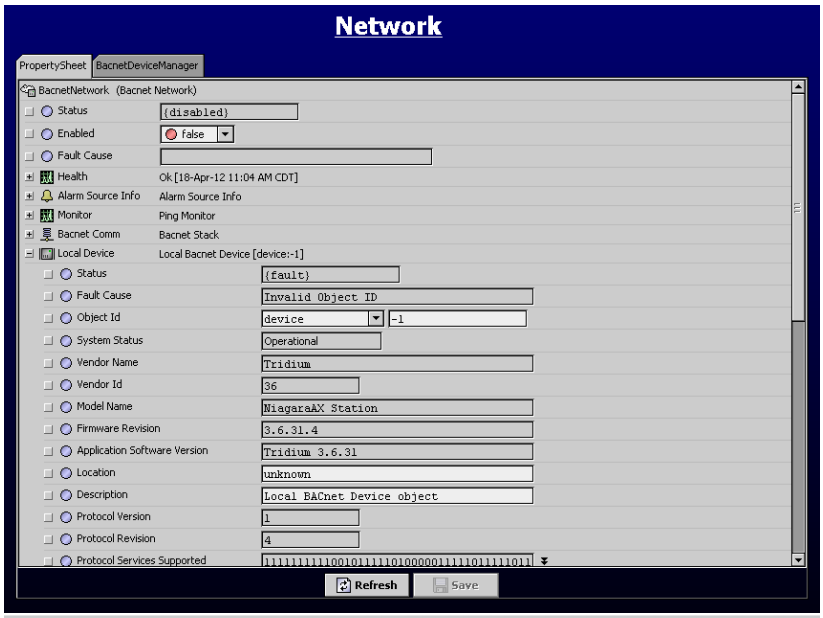


BACnet Network Page Showing BBMD Address Field Highlighted

networks that are split across different IP subnets. The easiest way to set up the JENEsys controller as a BBMD is to input the IP address of a known BBMD in the “Bbmd Address” field of the Link section of the IP Port properties for the BACnet Network. Once you have the BBMD address of a known BBMD on a different subnet, the JENEsys controller will connect to that BBMD and populate it’s Broadcast Distribution Table with entries from the known BBMD. For BBMD, it is also necessary to change the Ip Device Type from Standard to BBMD. Furthermore, if the device is a foreign device on a BACnet network, it can be set up as such by changing the Ip Device Type from Standard to Foreign Device. For more information on BBMD and Foreign Devices please contact AAON Controls or Lynxspring.

BACnet Local Device Properties

The BACnet Local Device properties define the JENEsys controller as a device on the BACnet network. After configuring the proper network protocol, the Local Device properties may need to be configured in order to view the JENEsys controller as the correct BACnet device. The Object ID is sometimes used by the BACnet network to uniquely identify devices on the network. The Location and Description are optional fields that can help the BACnet supervisor identify BACnet devices.



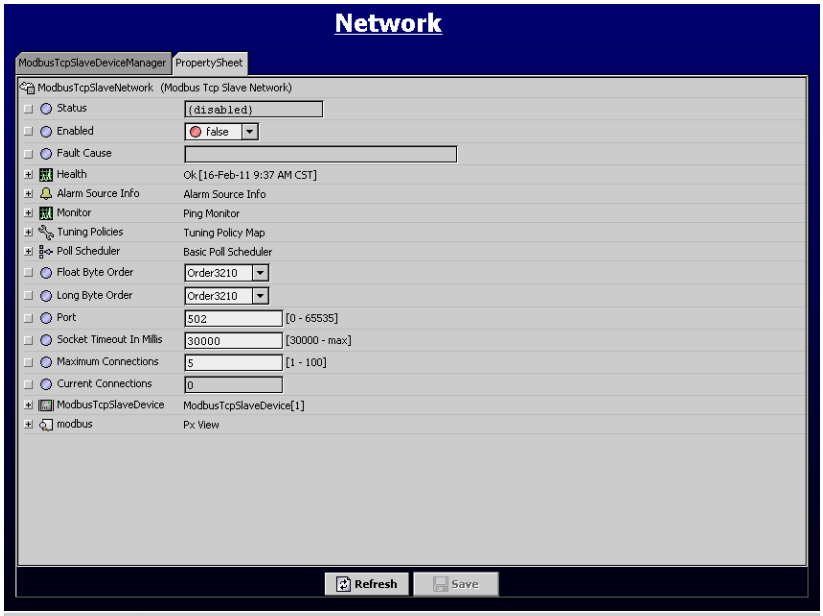
BACnet Network Page Showing Local Device

Make sure to save the station to ensure that the changes are written to the config file.

Modbus

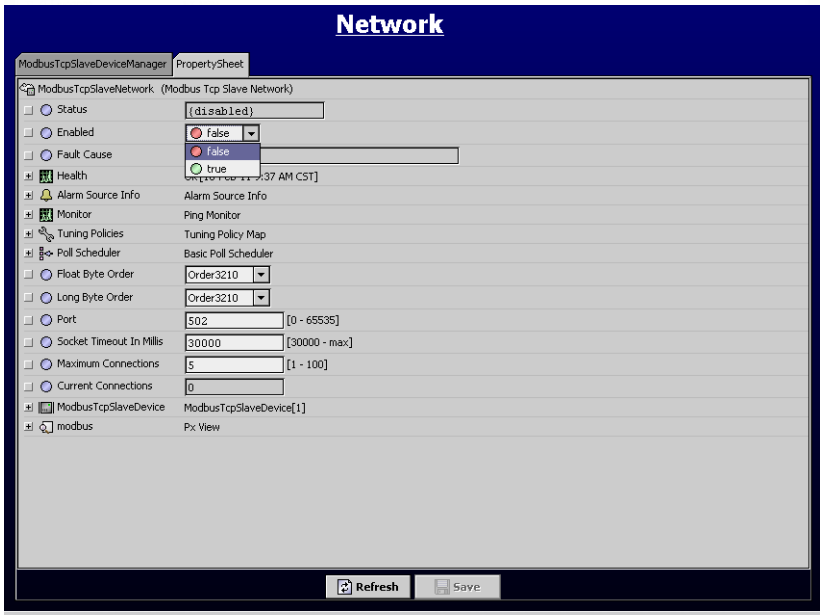
The modbus protocol does not need very much setup to be ready to integrate into the modbus system. The modbus network will need to be enabled and the device address must be set up. Those two steps are the only requirements in initializing the modbus network on the JENEsys controller. However, other properties may need to be adjusted depending on the desired arrangement of the modbus network. The system integrator should be familiar with what modbus properties need to be set in order for the JENEsys controller to communicate on the network.

To enable the modbus network, navigate to the network page of the web user interface. From here there are two tabs of information for the modbus network. The PropertySheet tab stores all of the properties for the modbus network and it will be the tab that the remainder of this section will focus on.



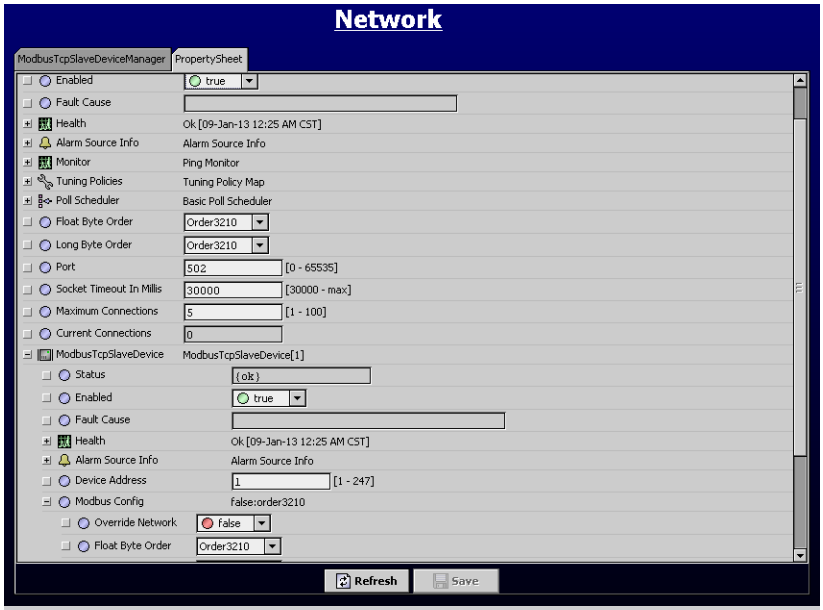
Modbus Network Page Showing Property Sheet

The second property on the property sheet for the modbus network is the “Enabled” property. Change the enabled property from false to true in order to enable the modbus network driver on the JENEsys controller.



Modbus Network Page Showing Enable

Once the modbus network is enabled, the modbus address can be set to match the desired address from the integrating contractor. Expand the “ModbusTcpSlaveDevice” property group in order to view the modbus device properties, including the modbus address.

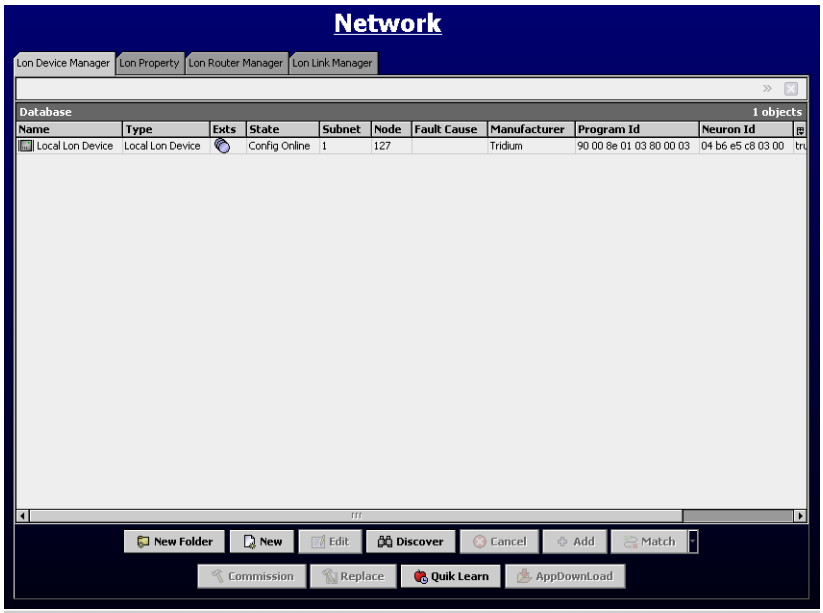


Modbus Network Page Showing Device Properties

Set the modbus address to the desired address and then configure any other Modbus Config items that my need to be changed to match the specific network on site. At this point the modbus network should be enabled and ready to communicate with the modbus master. Make sure to save the station to ensure that the changes are written to the config file.

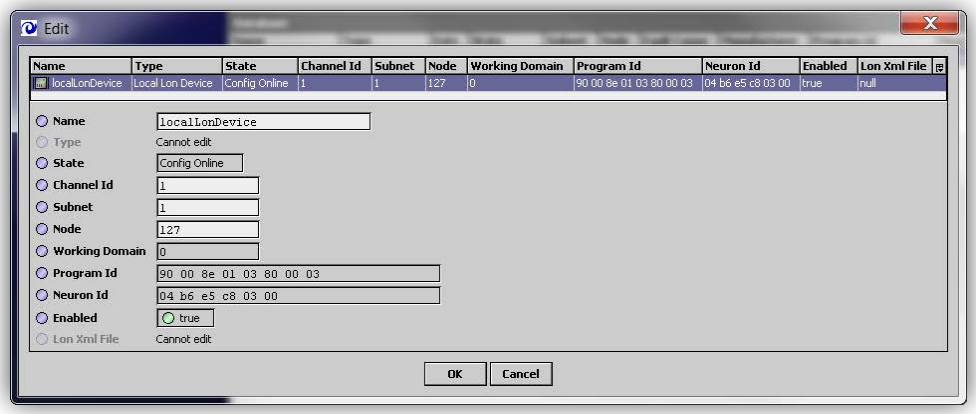
LonWorks

The LonWorks protocol requires quite a bit of configuration before it is prepared to communicate with the network. The network page of the web user interface contains four tabs for a LonWorks configured unit.



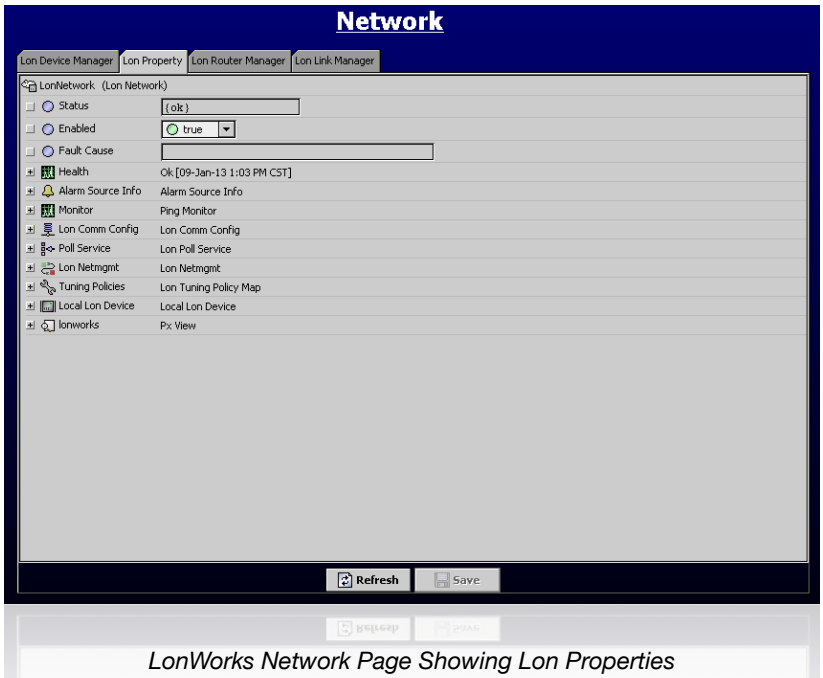
LonWorks Network Page Showing Lon Device Manager

The first tab is the Lon Device Manager and it holds a database of Lon devices with one entry, the Local Lon Device. The Local Lon Device contains the definitions of the Lon driver properties for the JENEsys controller. Double-clicking on the Local Lon Device will bring up a quick view of some of the most important properties for the JENEsys controller as a Lon device.



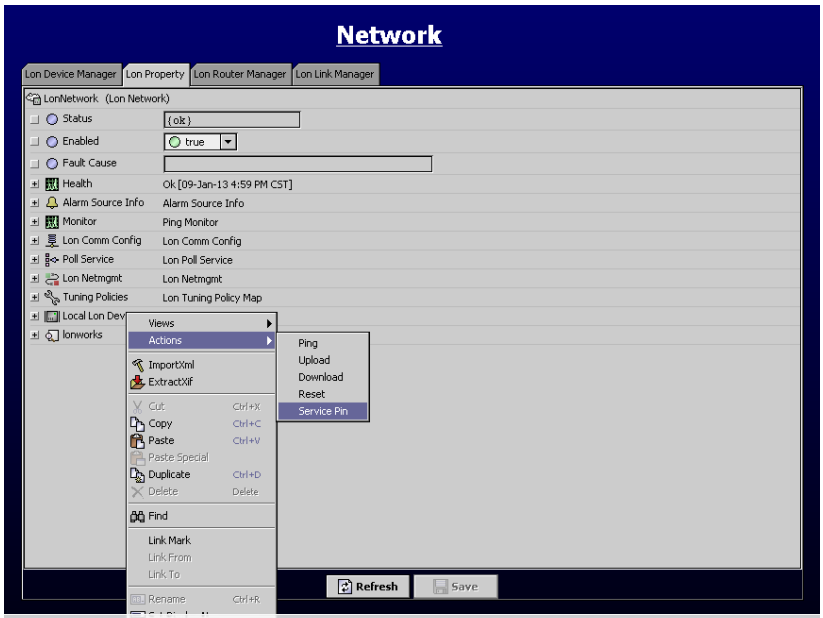
LonWorks Edit Dialog for Local Lon Device

The edit dialog that appears after double-clicking on the Local Lon Device allows for the addressing of the Lon device node. The Channel ID, Subnet, and Node will need to be changed to the appropriate value desired by the network supervisor. After entering the correct information in the edit dialog, switch to the Lon Property tab.



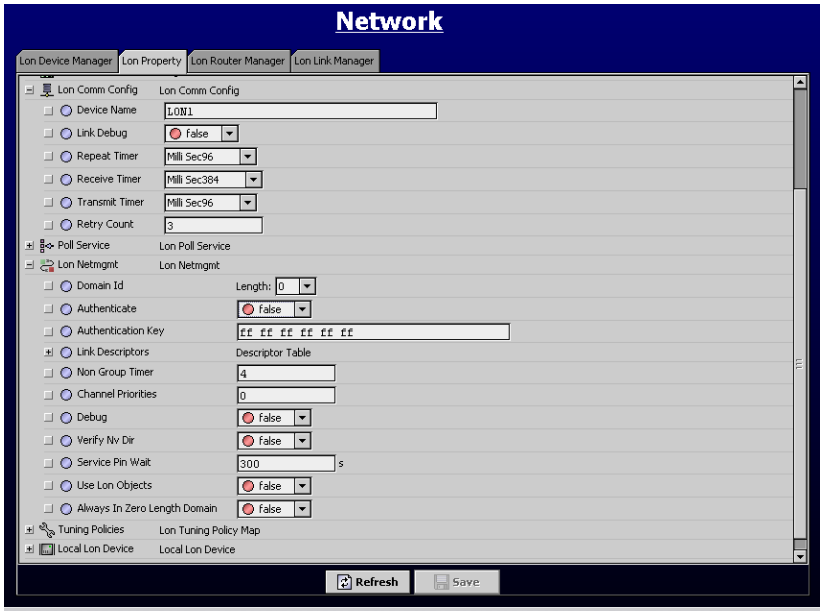
LonWorks Network Page Showing Lon Properties

From this tab, the Lon Network can be enabled and disabled as needed by changing the “Enabled” property. By default, the unit will be shipped out with the network disabled and will need to be enabled before it will communicate with the network. The Lon Property tab also has a number of different properties that may need to be configured for the Lon device to operate properly.



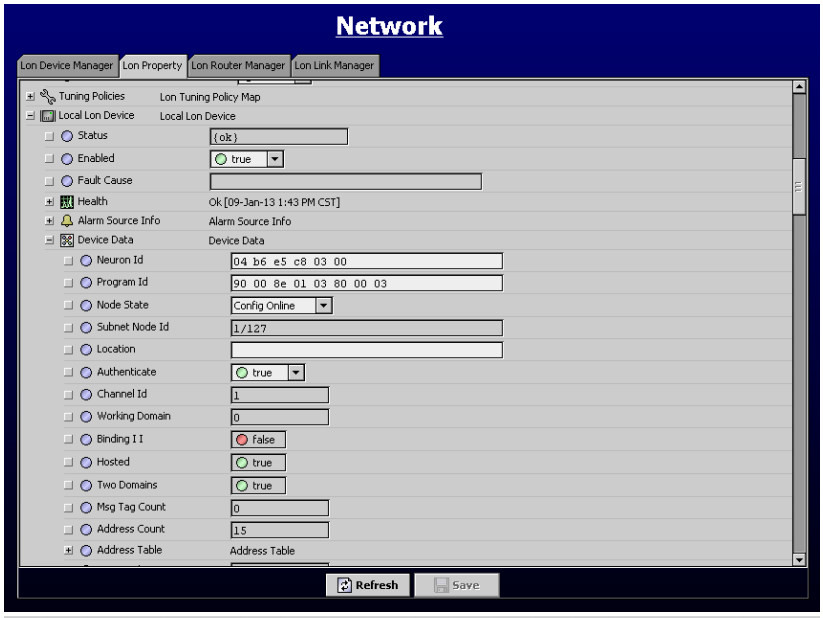
LonWorks Network Page Showing Service Pin

To access the service pin, right-click on the Local Lon Device and hover over “Actions.” Select “Service Pin” from the Actions menu. Expand the Lon Comm Config property group by clicking the + next to Lon Comm Config. The Lon Comm Config group contains properties for synchronizing the timing of the Lon driver with the timing of the network.



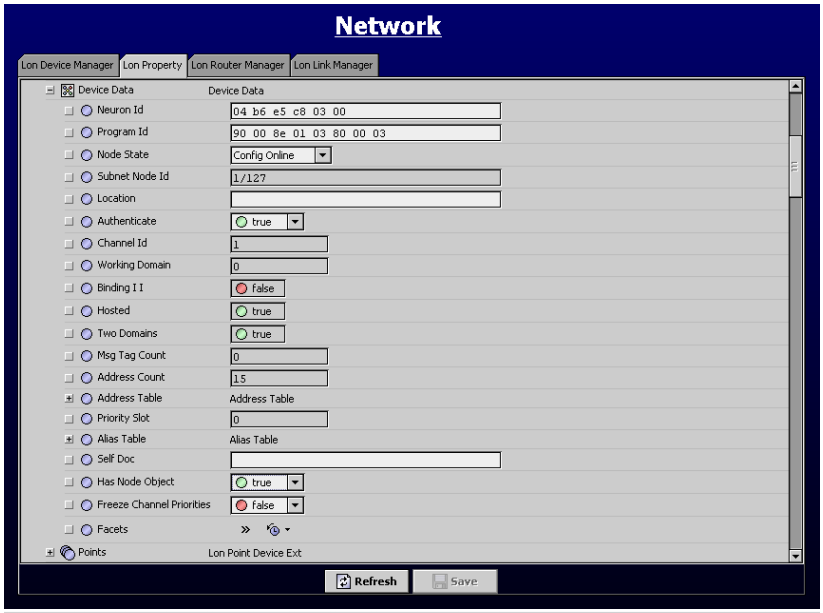
LonWorks Network Page Showing Lon Comm Config and Lon Netmgmt

Next, Expand the Lon Netmgmt property group. This group contains the Domain Id, which will need to be configured based on how the network is identified. The integration engineer will need to properly address the Lon Netmgmt properties. Expand the Local Lon Device property group by clicking the + next to Local Lon Device to access more advanced Lon Device properties.



LonWorks Network Page Showing Local Lon Device Properties and Device Data

The Local Lon Device properties contain much more information than the editing window from the Lon Device Manager. The Local Lon Device can be enabled or disabled by changing the "Enabled" property. Ensure that it is enabled for the device to function properly. Next, expand the Device Data properties by clicking the + next to Device Data. Under the device Device Data properties are the Neuron Id, Program Id, Node State and many other properties. **The Neuron Id and Program Id are populated by the Lon card in the controller and should not be changed.** The Node state



LonWorks Network Page Showing Device Data Properties

should be set to Config Online. The Subnet Node Id defines the node address based on the subnet and node that were entered on the editing dialog on the Lon Device Manager tab. Check to see that the Subnet Node Id matches the desired node address. Each device on the network must have a unique Subnet Node Id. Finally, make sure that the Has

Node Object property is set to true. The Location and Self Doc properties can be used for identification purposes by the network supervisor. At this point the lonworks device should be enabled and ready to communicate with the lonworks network. Make sure to save the station to ensure that the changes are written to the config file.

Niagara Fox

The niagara fox protocol requires niagara AX certified technicians to setup and does not have a network properties sheet. To get the niagara fox network up and running simply change the IP address of the controller to match the subnet of the fox supervisor that will be communicating with it. Once both controllers are on the same network, the supervisor should be able to discover the JENEsys unit controller.

Notes:

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